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ABSTRACT

The appendix examined the measurement instruments developed in the course of the Integrated Management of Cerebral Palsy project to measure functional movements and socialization skills of severly handicapped, nonambulatory cerebral palsied children who had limited speech. The field test sample consisted of 51 cases for the Eau Claire Functional Abilities Test (ECFAT) and 49 cases for the Wolfe-Bluel Socialization Inventory (WBSI). The ECFAT was found to provide a comprehensive coverage of motor skills involved in daily tasks (such as sitting, standing, walking, eating, writing, and dressing) and to evidence high test-retest reliability. The WBSI consisted of 62 items organized along the following seven subscales: self care, environmental orientation, independence, communication, emotional maturity, group interaction, and intellectual growth. Both instruments were found to have validity, comprehensive scope, and outstanding reliability. Functional ability charts for the ECFAT were included. (For related information, see also EC 050 502, EC 050 503, and EC 050 505.) (GW)

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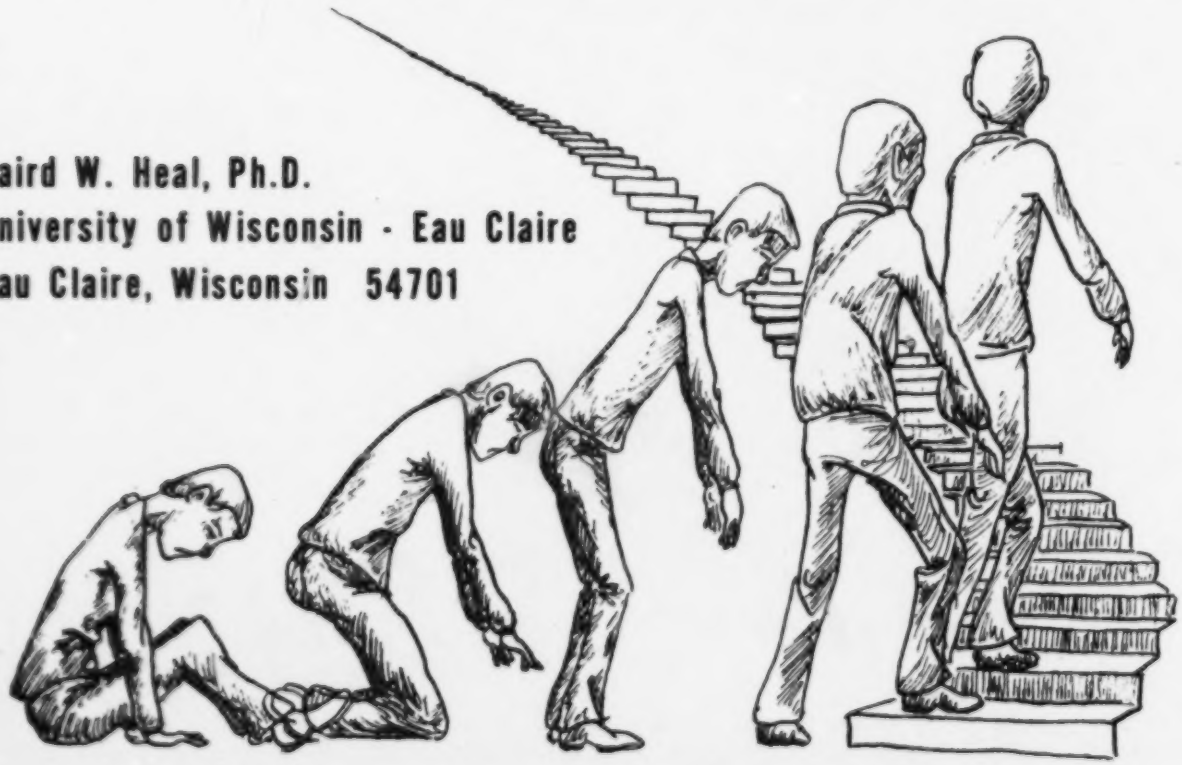
EVALUATING AN INTEGRATED APPROACH TO THE MANAGEMENT OF CEREBRAL PALSY

APPENDIX B: INSTRUMENTS FOR THE EVALUATION OF SEVERELY HANDICAPPED CEREBRAL PALSIED CHILDREN



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Evaluating an Integrated Approach to the Management of Cerebral Palsy

Appendix B: Field Test Report of the Eau Claire Functional Abilities Test and The Wolfe-Bluel Socialization Inventory

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August, 1972

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Instruments for the Evaluation of Severely Handicapped Cerebral Palsied Children

For its evaluations, the IMCP project needed measurement instruments to evaluate functional movements, socialization skills, and cognitive growth of severely handicapped, non-ambulatory cerebral palsied children who had limited speech. A thorough search of the measurement instrument literature provided acceptable instruments in the third category, but not the first two.

Because of the limitations of existing instruments, the IMCP staff found it necessary to develop and field-test its own. These instruments, the Eau Claire Functional Abilities Test (ECFAT) and the Wolfe-Bluel Socialization Inventory (WBSI), are the subject of this appendix. It should be noted parenthetically that the evaluation procedures used at the Institute for Movement Therapy in Budapest (see Appendix C) were not fully known to the IMCP staff at the time that the evaluation instruments were being selected. The translation of these instruments would probably greatly facilitate the evaluation of multiply handicapped children.

Subjects

The data to be presented below are based on two sets of subjects: The field test (FT) sample and the project sample.

The field test sample consisted of 51 cases for the Eau Claire Functional Abilities Test (ECFAT) and 49 for the Wolfe-Bluel Socialization Inventory (WBSI). These children were all the available non-ambulatory cerebral palsied children between the ages of 6 and 13 from the IMCP pilot project (WBSI n = 11) and from three Chicago orthopedic schools: Illinois Children's Hospital-School (WBSI n = 21; ECFAT n = 21); Jane Neil School (WBSI n = 17; ECFAT n = 17); and Walter S. Christopher (ECFAT n = 13). Thirty five cases were common to both the WBSI and ECFAT field test samples. In addition to these subjects, 11 field-test subjects were eliminated from the ECFAT because both raters scored them with 87 or more of the possible 88 points. Forty five of the ECFAT subjects were tested twice, once in November, 1970, and once in March, 1972. The mean 1970 age of this group was 10.62 and the unbiased standard deviation was 2.52. Unfortunately the ages of other FT subsamples were not determined.

The project sample consisted of the 10 Integrated Management (IMCP) children and the 15 Conventionally Trained (CT) children with whom they were compared. (See Volume I of this report.) The project children were from the IMCP

project at Northern Wisconsin Colony (n = 10), Illinois Children's Hospital-School (n = 4), Crippled Children's Hospital and School in Souix Falls, South Dakota, (n = 3) and Worthington Crippled Children's School in Worthington, Minnesota (n = 8).

The IMCP children were all those who met four criteria. They were (a) non-ambulatory, (b) between the ages of five and 13, (c) able to understand simple instructions and (d) admissible to Northern Wisconsin Colony (admission requirements are a measured IQ under 70, permission of parents and Wisconsin residency.) The remaining project subjects were matched to the extent possible with the IMCP subjects on (a) description of cerebral palsy, e.g. athetoid quadriplegia, spastic quadriplegia, mixed spastic athetoid, etc.; (b) chronological age; (c) mental age; (d) motor ability in lying, sitting, and "walking" positions; (e) hand skills; (f) dressing abilities and (g) speech characteristics.

The mean age of the project sample was 9.12 years and the unbiased standard deviation was 2.21.

Ten of the 11 IMCP "pilot" subjects who participated in the WBSI field testing were retained to become the IMCP project sample. Three of the children from Illinois Children's Hospital-School were sampled for both the WBSI and ECFAT field testing and the Conventionally Trained project sample. Any re-sampled children were retested as well.

Sex was approximately balanced in all samples. No subject was ambulatory without external aids such as canes, braces or crutches.

The Eau Claire Functional Abilities Test (ECFAT)

Instruments to assess motor skills (e.g., the Lincoln-Oseretsky Motor Development Scale (Sloan, 1951); the Purdue Perceptual Motor Survey (Roach & Kephart, 1966); and the Youth Fitness Test (AAHPER, 1968), have been standardized only on ambulatory populations. The Bobath charts have been developed for use with non-ambulatory subjects, but these lack a quantitative scoring system.

The ECFAT, which appears as Appendix B.1, was designed to be sensitive to fine differences in the motor competences that are required for daily living skills. It consists of 11 subscales, each containing nine ordered performance levels. Each level, from zero to eight, represents a decreasing amount of facilitation (assistance) needed to accomplish a certain motor goal or function. The zero point represents the maximum amount of facilitation needed by a child to achieve a particular goal such as sitting or walking. The ninth point on the scale (a score of 8) represents an ability to achieve the goal in a functional manner with no facilitation at all. The ten subscales test a broad spectrum of motor ability: prone and supine mat skills, sitting, pulling to and maintaining a stand, sitting from a stand, walking, fine motor skills, writing, dressing, eating, and drinking. Since decreasing facilitation represents increased independence in the measured behaviors, the scales are regarded to be measures of change and improvement when given at periodic intervals.

The ECFAT is designed to be administered by a carefully trained but not necessarily a professionally trained person, since a technical fore-knowledge of human physiological functioning is not necessary.

Procedure

In September and October of 1970 the IMCP staff developed the ECFAT in constant interaction with the IMCP pilot subjects at Northern Wisconsin Colony. The FT sample was tested twice by the same two testers, first in November, 1970, and again in March, 1972. One of the testers was a teacher-therapist on the IMCP staff. The other was an occupational therapist who was recruited to be an uninformed, impartial evaluator, but who subsequently joined the IMCP staff as a teacher-therapist herself.

The project sample was tested three times by the same tester, a physical therapist who was given thorough orientation to the ECFAT's scoring procedures, in late April of 1971, in early December, 1971, and in late April of 1972.

All ECFAT tests of any administration were given within a two week period.

The instructions for administering and scoring the ECFAT appear in Appendix B.1 along with the instrument itself.

Results

Descriptive Data. The means and standard deviations of the project sample appear in Table 2 of the body of this report and will not be repeated here. The means and standard deviations of the field-test sample appear in Table B.1. It can be seen that this sample tended to score much higher than the project sample, raising some question as to the value of the field test in relation to the project children. Despite the skewness of the field sample distribution, the decision was made to use raw scores for all statistical analyses. The rationale for this decision was that the sample was not precisely specified, and another sample of subjects was sure to differ considerably from the one selected here. Conclusions based on the raw data were sure to have wider applicability than those based on transformed scores.

Reliabilities. The item by item reliabilities for the field test sample and the program sample were reported in Table 1 of the body of this report. The portions of this table that relate specifically to the ECFAT are presented in Table B.2. It can be seen that both the test-retest reliabilities and the inter-observer reliabilities for this instrument are unusually high. It should be noted that for the field test data the scores of the two occasions were averaged to get the inter-scorer reliabilities, and the scores for the two judges were averaged to get the test-retest reliabilities. This averaging probably inflated these field-test reliabilities slightly. The reliabilities reported for the project sample were adjusted for any differential gains that were made by the two groups. These adjustments were made by the analysis of variance procedure outlined by Winer (1962, p.128). The Spearman-Brown prophecy formula was applied so that the reported reliabilities refer to per-occasion consistency.

Intercorrelations of ECFAT Subtests

Table B.3 shows the intercorrelations among the ECFAT subtests and the Total. The intercorrelations above the diagonal are those for Rater 1. Those below the diagonal are those for Rater 2. The item-total correlations have been corrected for spuriousness. The interrater reliabilities are shown along the diagonal.

Table B.1. Means and Unbiased Standard Deviations of the Eleven ECFAT Subtests and the Total for the Field-Test sample. n = 45

	Rater 1				Rater 2			
	Occasion 1		Occasion 2		Occasion 1		Occasion 2	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Mat tasks	5.87	2.37	6.22	2.33	5.87	2.39	6.29	2.48
Sitting	6.38	2.30	6.69	2.21	6.42	2.31	6.76	2.14
Standing	4.60	2.74	4.69	2.91	4.51	2.72	4.80	2.80
Sitting down	5.27	2.68	5.38	2.85	4.93	2.73	5.18	2.78
Walking	3.33	2.97	3.56	2.85	3.22	2.98	3.40	2.95
Eating	6.00	2.65	6.36	2.52	6.00	2.69	6.42	2.40
Chewing	7.31	1.16	7.18	1.30	7.27	1.32	7.31	.90
Drinking	6.00	2.82	6.24	2.60	5.93	2.93	6.18	2.68
Hand Skills	6.31	2.67	6.64	2.38	6.36	2.71	6.64	2.38
Writing	5.96	2.71	6.29	2.75	5.96	2.71	6.27	2.74
Dressing	4.93	2.63	5.80	2.42	4.84	2.75	5.91	2.47
Total	61.96	23.48	65.04	22.94	61.31	23.95	65.16	22.76

Table B.2. Reliabilities of the ECFAT

Dependent Variable	Inter-rater		Test-retest	
	First Field Test n = 51	Both Field Tests n = 45	Field Sample n = 45	Project Sample[1] n = 24
Mat Tasks	.991	.957	.877	.937
Sitting	.981	.995	.892	.871
Standing	.993	.992	.844	.959
Sitting Down	.959	.968	.839	.947
Walking	.990	.992	.819	.946
Eating	.996	.995	.951	.897
Chewing	.983	.950	.811	.838
Drinking	.993	.987	.931	.943
Hand Skills	.996	.998	.942	.910
Writing	1.000	1.000	.847	.793
Dressing	.954	.990	.850	.928
Total	.997	.998	.958	.984

[1]Reliabilities in this column were based on three occasions of measurement adjusted by the Spearman-Brown procedure (Winer, 1962, p.128) to reflect the per-occasion reliabilities, making them comparable to the others reported. The Groups by Occasions interactions have been partialed out using Winer's suggested procedure.

Table B.3. Correlations among Items on the ECFAT for Rater 1 and Rater 2 and the Inter-rater Reliabilities.

Rater 1 / 2	1	2	3	4	5	6	7	8	9	10	11	Tot.
1. Mat Tasks	.991	.764	.782	.770	.765	.618	.370	.656	.585	.702	.764	.765
2. Sitting	.755	.981	.746	.801	.564	.827	.490	.838	.747	.837	.763	.860
3. Standing	.805	.775	.993	.920	.804	.584	.282	.697	.613	.688	.784	.831
4. Sitting Down	.770	.770	.947	.959	.705	.549	.249	.646	.594	.648	.746	.809
5. Walking	.758	.571	.825	.742	.990	.444	.245	.556	.477	.473	.721	.687
6. Eating	.762	.834	.619	.540	.474	.996	.728	.920	.808	.852	.693	.840
7. Chewing	.357	.439	.271	.157	.239	.717	.983	.664	.626	.594	.400	.536
8. Drinking	.657	.812	.682	.596	.527	.934	.708	.993	.809	.832	.741	.884
9. Hand Skills	.603	.769	.625	.575	.465	.822	.626	.828	.996	.818	.660	.803
10. Writing	.728	.822	.684	.639	.480	.876	.587	.833	.823	1.000	.782	.866
11. Dressing	.779	.745	.775	.703	.724	.745	.456	.760	.687	.786	.954	.838
12. Total	.781	.866	.835	.778	.684	.865	.528	.877	.810	.873	.861	.997

Note: Total correlations have been corrected for spuriousness using the procedure suggested by Nunnally (1969, p. 262). Correlations between the scores of the two raters (inter-rater reliabilities) are shown along the diagonal. The correlations are above the diagonal for rater 1 and below for rater 2.

Growth norms. The major purpose for re-testing the field-test sample was to establish growth norms that would permit a more valid comparison of the IMCP and Conventionally Trained groups. Lacking the resources to test large numbers of children at all levels of age and disability, the project used the strategy of solving a regression equation to predict subject's posttest score from his pretest score, the square of his pretest score, his age and the square of his age. That is, the B weights were established in the following equation:

$$\hat{Z} = B_1X + B_2X^2 + B_3Y + B_4Y^2 + C$$

where Z is the predicted posttest score after 12 months,

B_i are the weights that minimize the squared deviations of $\hat{Z}$ from Z, the posttest obtained 12 months after the pretest (the pretest score plus 3/4 of the 16-month gain),

X is an ECFAT pretest score,

Y is age in years + 1.25 (a constant of convenience for IMCP analyses) and

C is the regression constant.

The weights resulting from this analysis appear in Table B.4. These weights can be applied to any subject to predict his ECFAT posttest score from age and from an ECFAT pretest that has been given to him a year prior to the posttest.

Thus, a seven-year-old non-ambulatory cerebral palsied subject with a total ECFAT pretest score of 44 would be expected, a year later, to have a score of

$$(1.2788)\ (44) - (.0035)\ (44^2) + (.0113)\ (8.25) - (.0305)\ (8.25)^2 + 4.7772 \text{ or } 52.29.$$

The squared multiple correlations indicate that there was extremely good prediction and therefore little error of prediction. The standard error of estimate for the post-test scores, given by the formula, $SE = (S_{Tot})\sqrt{(1-R^2)}$ or, using the S.D. from rater 1 (Table B.1) and the R^2 from Table B.4, SE = 22.94 (1 - .966) is .429.

Discussion

The construction of the Eau Claire Functional Abilities Test is, perhaps, the project's most impressive contribution to cerebral palsy. With its emphasis on function, it avoids

Table B.4. B Weights and Regression Constant for Predicting an ECFAT Posttest Score from Age and from a Pretest Given One Year Earlier

	B Weights				C	R^2
Variable	Pretest	$(Pretest)^2$	Age[1]	$(Age)^2$		n = 45
Mat tasks	1.2815	-.0424	-.1377	-.0004	2.0343	.895
Sitting	1.6596	-.0890	.6339	-.0316	-2.7515	.935
Standing	1.2370	-.0472	.3549	-.0196	- .9440	.842
Sitting Down	.6749	.0229	.8638	-.0441	-2.7366	.852
Walking	1.0873	-.0368	.3287	-.0176	- .7422	.815
Eating	1.2374	-.0351	-.1433	.0032	.8728	.957
Chewing	1.1280	-.0270	.0582	-.0009	- .0403	.823
Drinking	1.2317	-.0365	-.3222	.0121	2.4476	.938
Hand Skills	1.2738	-.0443	-.1619	.0037	1.9598	.960
Writing	1.0327	-.0152	-1.1066	.0430	7.5097	.850
Dressing	1.5725	-.0840	.2605	-.0121	- .7850	.896
Total	1.2788	-.0035	.0113	-.0305	4.7772	.966

1 Age is in years - 1.25 years should be added to the pretest age if these weights are used for individual predictions.

the pitfalls of excessive concern for normal body structure and coordination. While it appears to lack the multi-dimensionality that one would expect of motor functioning in the cerebral palsied, it has a comprehensive coverage of daily tasks that involve motor skills. In addition to its face validity, the ECFAT has reliability that is phenomenal in a first-draft instrument. The test-retest reliabilities were nearly as high as the inter-rater reliabilities, indicating that the behaviors assessed by the instrument can be objectively rated and remain stable over time. The stability of the instrument over the test-retest interval was especially impressive in view of the finding, not reported above, that the field-test children made significant ($p < .05$) gains on five of the 11 subtests and the total. Its usefulness is increased by the availability of growth norms. In all, it appears that the ECFAT could become a standard for the evaluation of functional progress in non-ambulatory, severely handicapped cerebral palsied children.

The greatest weakness of the ECFAT field test data is their marked skewing. Despite the questionable procedure of eliminating as inappropriate all subjects whose scores were within one point of the maximum, there was significant skew on most of the subtests. It could be argued that this skew was an artifact of sampling from orthopedic schools, and that it would be less severe in the general population of non-ambulatory cerebral palsied. However, with the heavy dependence upon these data for setting interpretive standards for the instrument, it is unfortunate that the distributions of these scores depart so radically from normality.

It is clear that the intercorrelations among subtests are extremely high. It appears that there may be two factors latent in this matrix (Table B.3). First, Standing, Sitting Down, and Walking appear to have high intercorrelations. Second, Eating and Writing activities appear to be intercorrelated, except for the low correlation between Chewing and Writing.

The Wolfe-Bluel Socialization Inventory (WBSI)

Instruments used to test social maturity have been developed in the main for normal children, and contain a concentration of items involving complex motor responses or expressive speech. Selected examples appear as references.

The WBSI was developed at the same time as the ECFAT to provide the IMCP project with scales of social behavior that could be used to evaluate severely handicapped non-ambulatory cerebral palsied children.

The WBSI appears in Appendix B.2. In consists of 62 items organized into seven subscales.

(a) Self Care has seven items that deal with toilet training and cleanliness.

(b) Environmental Orientation has 10 items that cover awareness of the animate and inanimate objects in one's environment.

(c) Independence has eight items that refer to the subject's disposition or ability to play or function without help.

(d) Communication has nine items that deal with the appropriate use of verbal or non-verbal communication skills.

(e) Emotional Maturity has 10 items that deal with both approved and disapproved behaviors.

(f) Group Interaction has 11 items that deal with cooperative socializing behaviors.

(g) Intellectual Growth has seven items that tap primitive cognitive skills.

Each item specifies a behavior that may or may not characterize the subject being evaluated. The respondent's task is to assign a number to each item, depending upon whether the behavior characterizes his subject never (0), rarely (1), sometimes (2) or usually (3).

The WBSI depends on judgments provided by a respondent who knows the subject well. Since it depends upon observations of behaviors, it should be administered by a carefully instructed observer who has frequent interaction with the subject.

Procedure

Unlike the ECFAT, the WBSI was field-tested only once, in November, 1970, thru February, 1971. The directors of the cooperating orthopedic schools selected two respondents for each child sampled from their setting. Each respondent was instructed to rate his child (children) independently of the other respondent.

The project sample was tested three times, once in the spring of 1971, once in the fall of 1971, and once in the spring of 1972. Because the WBSI testing was not scheduled for a particular day, each testing "date" covered several weeks. The "Spring" 1971 testing date was especially variable, some IMCP children being tested as early as February and some Conventionally Trained children as late as July. All institutions were asked to use the same respondent on successive test administrations, although staff turnover and children's advancement in programs resulted in many exceptions to this request.

The instructions that were used for administering the WBSI appear in Appendix B.2. In retrospect, several improvements could be made in these instructions. Suggestions will be made below.

Results

Descriptive Data. The means and unbiased standard deviations for the project sample appear in Table 2 of the body of this report and will not be repeated here. The means and unbiased standard deviations of the field test sample appear in Table B.5. The distributions are less skewed with the WBSI than they were with the ECFAT.

Reliabilities. The reliabilities for the WBSI are reported in Table B.6. Because the WBSI field-test sample was tested only once, the only test-retest reliabilities were obtained from the project sample. While the reliabilities for this instrument were not so impressive as those for the ECFAT, they were passable. As with the ECFAT, the reliabilities reported for the project sample were adjusted for any differential gains by the IMCP and CT groups, and for the number of measurement occasions.

Subscale Intercorrelations. The intercorrelations among subtests are shown in Table B.7. Correction for spuriousness of the correlation of the subtests with the total have been made according to the procedure suggested by Nunnally (1969).

Table B.5. Means and Unbiased Standard Deviations of the WBSI Pretest

Dependent Variable	Data Set 1		Data Set 2	
	Mean	S.D.	Mean	S.D.
Self Care	12.55	6.48	10.76	6.46
Envmtl. Orient.	26.67	4.49	26.71	3.64
Independence	17.35	5.60	15.69	5.82
Communication	20.65	6.61	20.71	6.18
Emo. Maturity	24.82	3.94	24.20	4.78
Gr. Interaction	23.96	6.83	23.84	7.30
Intell. Growth	15.39	4.98	14.80	5.06
Total	141.39	28.57	136.71	29.06

Table B.6. Reliabilities on the WBSI

Dependent Variable	Inter-rater Field Test Sample n = 49	Test-retest[1] Project Sample n = 25
Self Care	.633	.503
Envmtl. Orient.	.100	.518
Independence	.444	.478
Communication	.792	.781
Emo. Maturity	.423	.652
Gr. Interaction	.563	.425
Intell. Growth	.464	.460
Total	.506	.694

[1]Reliabilities in this column were based on three occasions of measurement adjusted by the Spearman-Brown procedure (Winer, 1962, p. 128) to reflect the per-occasion reliabilities, making them comparable to the others reported. The Groups by Occasions interactions have been partialed out using Winer's suggest procedures.

Table B.7. Intercorrelations among the Subtests of the WBSI for Data Set 1 and Data Set 2 and the Inter-rater Reliabilities.

	Data Set 1							
Data Set 2	1	2	3	4	5	6	7	Tot.
1. Self-Care	.633	.276	.263	.414	.060	.293	.192	.335
2. Envtl. Orient.	.304	.100	.615	.471	.567	.666	.626	.726
3. Independence	.348	.591	.444	.361	.492	.677	.644	.680
4. Communication	.108	.396	.317	.792	.414	.622	.323	.592
5. Emo. Maturity	.122	.450	.443	.467	.423	.621	.356	.551
6. Gr. Interaction	.260	.672	.699	.626	.673	.563	.732	.835
7. Intell. Growth	.303	.660	.707	.541	.434	.844	.464	.646
8. Total	.295	.690	.693	.535	.576	.869	.808	.506

Note: Total correlations have been corrected for spuriousness using the procedure suggested by Nunnally (1969, p. 262). Correlations between the scores of the two raters (inter-rater reliabilities) are shown along the diagonal.

Item Analysis. Corrected (Nunnally, 1969) item-subtest and item-total correlations appear in Table B.8 for Data Set 1 and in Table B.9 for Data Set 2.

Discussion

While the performance of the WBSI is not so impressive as the ECFAT, it does have passable indices of consistency and deals with judgments that are more difficult to make. Furthermore, the performance of the WBSI could probably be improved considerably with a slight modification in the respondent's instructions. For instance, item 1, "Indicates when pants are wet or soiled" must be scored zero, according to a literal interpretation of the original instructions, for a subject who has no accidents. In fact, most respondents rated this item 3, but the ambiguity of instructions led some to indicate a zero for children who had high overall scores. A score of zero should be unambiguously reserved for the subject who cannot or will not perform on an item.

Subtest intercorrelations suggest that there are two factors, one consisting of Environmental Orientation, Independence, Group Interaction and Intellectual Growth; the other consisting of Communication, Emotional Maturity, and Group Interaction. The first factor might be labeled Independence and the second might be labeled Sociability.

Item-subtest correlations indicate that items could be re-grouped in order to create more homogeneous subtests. Furthermore, some items should be removed or improved in order to increase the consistency and reliability of the instrument.

General Discussion

The instruments developed by the IMCP project appear to have been equal to the task for which they were designed. Indeed published instruments of motor functioning are hard-pressed to match the ECFAT's precision of measurement.

For practical and philosophical reasons one point should be emphasized. These instruments were developed for use with an abnormal population. The convention of the measurement field is to develop norms for any instrument that is developed. However, what are appropriate norms for the abnormal? It appears that this question can be answered in two ways. If the measurement objective is to position the subject of the examination relative to the population at large, then norms must be developed using a random sample of the population at large. The second

Table B.8. Means and Biased Standard Deviations of Individual WBSI Items and Corrected Correlations of Individual Items with Subtest Scores and the Total Score on the WBSI Field Test--Data Set 1.

Item	Mean	S.D.	Tot.	Sub1	Sub2	Sub3	Sub4	Sub5	Sub6	Sub7
1	2.082	1.226	.312	.675	.252	.098	.271	-.078	.205	.089
2	1.980	1.220	.509	.722	.323	.339	.477	.197	.277	.212
3	2.184	1.137	.161	.569	-.057	.119	.198	-.085	.006	-.027
4	1.551	1.295	.423	.715	.290	.263	.345	-.000	.250	.232
5	2.020	1.204	.338	.724	.196	.063	.364	.053	.248	-.012
6	1.102	1.282	.364	.543	.164	.308	.172	.004	.243	.375
7	1.633	1.155	.411	.605	.267	.179	.358	.230	.301	.111
8	2.918	.274	.436	.119	.593	.207	.303	.407	.373	.356
9	2.510	.811	.601	.307	.562	.432	.391	.345	.558	.466
10	2.837	.370	.516	.098	.558	.396	.339	.461	.504	.382
11	2.755	.743	.543	.093	.589	.417	.255	.393	.555	.594
12	2.735	.563	.638	.125	.773	.611	.396	.471	.539	.500
13	2.714	.833	.322	.228	.377	.216	.210	.084	.215	.340
14	2.633	.919	.364	.246	.511	.259	.142	.380	.231	.230
15	2.714	.571	.541	.160	.634	.328	.410	.444	.478	.416
16	2.653	.771	.577	.286	.549	.410	.474	.394	.495	.363
17	2.204	.903	.539	.044	.453	.658	.278	.434	.503	.477
18	2.347	.938	.634	.335	.542	.537	.389	.492	.546	.439
19	2.408	.855	.569	.156	.567	.652	.259	.427	.525	.437
20	2.837	.509	.579	.184	.735	.479	.344	.376	.502	.432
21	2.143	1.069	.539	.170	.474	.745	.173	.374	.495	.462
22	2.041	1.068	.562	.181	.433	.731	.241	.438	.518	.454
23	1.939	1.018	.637	.296	.393	.700	.364	.398	.593	.545
24	1.959	.968	.573	.207	.448	.708	.272	.328	.477	.585
25	1.673	1.038	.371	.039	.234	.561	.161	.127	.376	.451
26	2.551	.784	.505	.321	.374	.289	.736	.240	.347	.219
27	2.878	.479	.503	.261	.585	.392	.456	.207	.351	.322
28	2.204	1.124	.391	.270	.120	.156	.698	.232	.369	.074
29	2.347	1.001	.634	.485	.319	.390	.718	.409	.533	.299
30	2.367	1.004	.576	.400	.347	.296	.776	.221	.508	.297
31	1.918	1.192	.502	.214	.403	.140	.627	.441	.519	.227
32	1.939	1.150	.578	.337	.292	.333	.845	.408	.504	.195
33	2.469	.811	.437	.182	.422	.204	.574	.202	.372	.256
34	1.980	1.097	.610	.323	.501	.340	.578	.338	.611	.371
35	3.020	1.116	-.083	-.250	-.192	.038	.065	.166	-.005	-.220
36	2.531	.785	.567	.084	.611	.506	.405	.511	.550	.321
37	2.082	1.066	.492	.334	.540	.358	.279	.150	.408	.406
38	2.837	.370	.411	.004	.514	.336	.213	.569	.373	.281
39	2.429	.782	.632	.250	.616	.605	.320	.482	.559	.470
40	3.735	.722	.024	-.017	-.027	.018	-.024	.264	.073	-.097
41	3.592	.780	-.032	-.183	-.015	-.005	.028	.249	-.007	-.134
42	2.755	.475	.334	.024	.310	.241	.150	.297	.429	.311
43	2.490	.703	.375	-.046	.260	.197	.325	.401	.485	.351
44	2.347	.771	.497	.089	.516	.306	.376	.516	.504	.335
45	2.367	.919	.691	.253	.659	.508	.469	.435	.607	.658
46	2.286	.857	.657	.172	.459	.559	.469	.505	.684	.553
47	2.306	.838	.777	.326	.657	.667	.555	.430	.694	.648
48	2.367	.800	.142	-.051	-.001	.091	.075	.198	.260	.176
49	3.653	.771	-.125	-.197	-.027	-.120	-.105	.224	-.147	-.136
50	1.633	1.082	.697	.244	.565	.565	.469	.352	.706	.677
51	2.143	.926	.593	.035	.513	.551	.315	.585	.689	.480
52	2.143	.808	.624	.130	.519	.426	.553	.585	.600	.442
53	2.122	.961	.677	.380	.435	.459	.591	.431	.663	.446
54	1.796	1.160	.695	.394	.446	.553	.437	.312	.704	.667
55	2.143	1.010	.746	.293	.524	.538	.597	.444	.811	.550
56	2.490	.732	.389	.025	.420	.491	.129	.282	.322	.443
57	2.245	.959	.496	.074	.488	.567	.153	.242	.512	.607
58	2.469	.610	.423	-.077	.313	.296	.307	.200	.540	.580
59	2.449	.970	.435	.059	.512	.411	.079	.200	.439	.691
60	2.286	1.107	.396	.168	.397	.243	.174	.102	.414	.597
61	1.837	1.131	.588	.159	.513	.578	.254	.331	.600	.660
62	1.612	1.291	.731	.373	.469	.598	.472	.371	.770	.601

Table B.9. Means and Biased Standard Deviations of Individual WBIS Items and Corrected Correlations of Individual Items with Subtest Scores and the Total Score on the WBSI Field Test--Data Set 2.

Item	Mean	S.D.	Tot.	Sub1	Sub2	Sub3	Sub4	Sub5	Sub6	Sub7
1	1.551	1.326	.403	.671	.405	.300	.165	.057	.240	.306
2	1.478	1.350	.427	.735	.257	.342	.112	.164	.293	.326
3	2.082	1.291	.223	.650	.049	.206	-.041	.094	.098	.100
4	1.286	1.385	.388	.603	.450	.333	-.010	.166	.258	.303
5	1.551	1.230	.265	.685	.114	.081	.146	.082	.132	.134
6	1.051	1.268	.318	.583	.187	.433	.050	-.179	.217	.314
7	1.347	1.117	.109	.196	-.209	-.012	.128	.234	.027	-.017
8	2.898	.364	.106	-.098	.443	-.015	.189	.107	.095	.134
9	2.408	.902	.452	.272	.325	.550	.029	.229	.414	.453
10	2.673	.549	.440	-.081	.588	.168	.392	.654	.532	.332
11	2.837	.618	.459	.269	.602	.473	.166	.186	.383	.418
12	2.673	.711	.429	.243	.495	.464	.148	.129	.355	.406
13	2.735	.750	.468	.187	.033	.369	.328	.332	.471	.410
14	2.653	.870	-.072	.109	.172	-.099	.015	-.166	-.142	-.077
15	2.776	.417	.432	.132	.421	.073	.507	.427	.448	.300
16	2.918	.340	.481	.188	.579	.300	.401	.365	.460	.374
17	2.143	1.030	.654	.232	.753	.582	.324	.342	.639	.678
18	2.184	.983	.490	.293	.424	.607	.114	.247	.409	.505
19	2.490	.643	.575	.233	.554	.365	.420	.370	.571	.481
20	2.755	.516	.494	.217	.401	.213	.424	.506	.449	.273
21	2.020	1.047	.493	.213	.425	.667	.162	.204	.425	.536
22	1.551	1.144	.602	.191	.459	.821	.250	.326	.569	.583
23	1.510	1.071	.642	.298	.392	.842	.256	.431	.601	.537
24	1.776	1.074	.632	.337	.474	.724	.220	.379	.595	.576
25	1.408	1.211	.549	.263	.415	.675	.309	.246	.514	.559
26	2.653	.656	.210	-.030	.234	-.033	.514	.075	.156	.221
27	2.939	.314	.003	-.211	.093	-.112	.263	-.088	.014	.096
28	2.143	1.262	.313	.035	.009	.099	.702	.060	.345	.328
29	2.245	1.116	.523	.503	.246	.367	.334	.319	.412	.425
30	2.429	1.010	.382	.076	.219	.065	.731	.272	.379	.255
31	1.980	1.237	.581	.030	.402	.334	.737	.454	.589	.504
32	1.714	1.143	.504	-.012	.223	.238	.807	.441	.518	.421
33	2.469	.703	.573	.021	.561	.398	.450	.542	.610	.445
34	2.143	1.195	.589	.021	.488	.362	.618	.569	.577	.479
35	3.000	1.069	.346	.060	.154	.272	.175	.589	.391	.210
36	2.347	.716	.516	.094	.434	.343	.274	.687	.556	.384
37	2.061	1.038	.422	-.059	.327	.310	.350	.265	.529	.450
38	2.755	.430	.580	.260	.429	.357	.408	.691	.565	.328
39	2.224	.953	.649	.197	.494	.510	.389	.597	.663	.536
40	3.776	.678	.151	.279	-.051	.045	.122	.197	.122	-.013
41	3.347	.938	.078	-.033	-.110	.110	.142	.312	.075	-.111
42	2.755	.475	.126	-.013	.090	.077	.088	.433	.072	-.012
43	2.551	.641	.370	-.082	.439	.200	.306	.513	.377	.302
44	2.388	.828	.628	.134	.570	.363	.558	.637	.621	.437
45	2.490	.883	.681	.180	.615	.414	.479	.548	.640	.729
46	2.327	.818	.559	.207	.364	.307	.517	.553	.523	.420
47	2.082	1.066	.593	.123	.522	.649	.270	.341	.633	.577
48	2.388	.922	.611	.120	.482	.422	.443	.581	.577	.597
49	3.837	.467	.097	.130	-.052	-.102	.112	.311	.024	.082
50	1.367	1.224	.617	.173	.417	.687	.328	.195	.642	.735
51	2.184	.919	.569	-.034	.559	.381	.457	.447	.640	.576
52	2.347	.744	.663	.056	.517	.396	.623	.670	.688	.529
53	2.082	1.047	.675	.223	.477	.559	.444	.607	.658	.545
54	1.490	1.311	.665	.414	.393	.598	.369	.369	.623	.615
55	2.245	1.079	.749	.233	.569	.501	.632	.570	.730	.655
56	2.347	.843	.556	.226	.443	.548	.381	.234	.515	.527
57	2.000	1.069	.517	.245	.344	.355	.312	.359	.534	.520
58	2.184	.941	.553	.164	.299	.379	.306	.377	.575	.513
59	2.612	.876	.565	.132	.605	.425	.307	.388	.606	.673
60	2.531	.992	.468	.049	.528	.371	.190	.355	.519	.517
61	1.459	1.245	.647	.283	.571	.681	.377	.171	.651	.598
62	1.163	1.218	.657	.314	.406	.595	.521	.263	.655	.546

alternative applies when it is possible to specify a progression of normalizing goals for subjects having a particular abnormality. A measurement instrument can then specify the steps that are associated with this progression and the evaluator can make a judgment as to which step characterizes his subject.

The first approach provides scores that have no meaning in their own right, but must be anchored to a carefully specified sample from the population at large. The second approach provides scores that have considerable meaning in their own right. Because there is a one-to-one correspondence between the number assigned to a subject and the descriptions of his performance, it is not crucial to know distribution of scores for the population at large. This second approach was the one taken in developing the present instruments. All numbers are anchored to meaningful behavioral guideposts. A score of zero indicates no performance and a maximum score represents competent, if not normal, performance. It is the position of the IMCP project that this latter approach has considerable merit as an instrument-developing strategy for abnormal populations. The reader is referred to Popham (1971) for a readable but thorough discussion of criterion-based measurement.

In conclusion, the instruments developed by the IMCP project have good face validity, comprehensive scope and outstanding reliabilities. They show considerable promise in the evaluation of the physically handicapped.

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APPENDIX B.1

Eau Claire Functional Ability Charts

These tasks are designed to evaluate the motor task-solving ability of children severely handicapped neuromotorically, particularly cerebral palsied persons. The tasks which are being evaluated deal with those motor skills and functional abilities in which cerebral palsied individuals generally exhibit some degree of dysfunction.

Each task is presented to the child in an order of descending participation or activity on the part of the child and an ascending order of help or facilitation given on the part of the test administrator except for task 8 and 9. Thus, the highest score represents the greatest independent activity on the part of the child, the lowest score represents the heaviest amount of help on the part of the administrator, and the least amount to independent activity on the part of the child.

Help, or facilitation, is given by the test administrator in the form of pressure applied at the stated body parts, or by the application of splints. Splints are not orthopedic braces, but pieces of cloth material, interlaced with steel bars, secured with Vel-Cro. These splints serve the purpose of fixing or stabilizing a body part in much the same way the hands of the tester would do. The tester, in some of the tasks, may need to employ the help of one other person, who need not be trained in the administration of this test. The second person would follow the specific directions of the test administrator and would not speak to the child or give any other aid.

In judging, it should be remembered that "facilitation" refers to pressure exerted in the assistance of movement on the part of the subject. "Heavy, light, or medium pressure" refers to judgable degrees of facilitation needed to augment active, appropriate activity in the body part. In some cases, the subject may often need pressure on the body part after he has made a part of the desired movement by himself, actively, to keep from having such body part move in the opposite direction, or to maintain a position necessary to the completion of the task. Again, the evaluation must be made quantitatively (heavy, medium, and light.)

There is built into each test a time factor stated as maintenance or achievement in a reasonable length of time. This will be a subjective judgment. The test administrator will be trained to judge whether the particular task could be maintained at a functional level for a longer time than the test itself requires and she will be trained to judge the degree of difficulty in terms of time as well as effort expended. "Some degree of difficulty" may imply a longer time taken to accomplish the task than a task performed easily. "A great (considerable) degree of difficulty" may imply an even longer time taken to accomplish the task than a task performed with "some degree of difficulty." This time element pertains primarily to spastics.

Indirect facilitation refers to "environmental" support for the child in any given task in which the administrator will not touch the child, but will offer the suggestion of support by suspending his hands and arms in the area around the child's head and shoulders, thus giving the idea of safety.

Equipment needed to give the test will be:

1 large mat
1 chinning bar
1 standard chair with rungs across the back
1 adjustable table
1 set of leg and arm splints
1 large crayon
1 plastic drawing kit
1 large block and stick
1 small disk and stick
1 penny
1 two handled cup
1 knife
1 fork
1 soup spoon
1 plate
1 bowl
1 banana
1 graham cracker
1 space food stick
1 button downshirt
1 pair of shorts
1 box for feet
1 bib
1 strap

The child will be brought to the test area without orthopedic braces and he will take the test in his barefeet.

The test administrator will be a person with training in one of the therapies usually thought of in connection

with Cerebral Palsy. The test administrator will be trained to give this test. The training will take place in a location removed from any of the participating groups. The tester will be informed that she will be helping in the standardization of this test and the evaluation of its efficacy as a reliable instrument.

EAU CLAIRE FUNCTIONAL ABILITY CHARTS

Scoring Sheet

Name of Testee _____ Date of Test _____

Institution _____ Number of Test _____

Instructions: Mark an X in the blank matching the rating you give the testee on each task.

	0	1	2	3	4	5	6	7	8
Task 1 Mat									
Task 2 Sitting									
Task 3 Standing Up									
Task 4 Sitting Down									
Task 5 Walking									
Task 6a Eating									
Task 6b Chewing									
Task 7 Drinking									
Task 8 Hand Skills									
Task 9 Writing									
Task 10 Dressing									

Task 1

MAT TASKS

The child is placed on the mat in a supine position. The child will attempt to perform and complete the entire task sequence. Directions for left and right will be made concrete since this is not a test of the ability to distinguish left and right.

8 - The child scores if he completes the following sequence easily. Roll right from supine to prone, continue in that direction rolling prone to supine, turn 180° in supine, roll left from supine to prone, turn 180° in prone, push up to a four point kneel, back down again to prone, roll left from prone to supine, and come up into a sitting position.

7 - The child scores if he completes the above sequence easily, but may have some difficulty in coming to a four point kneel and/or in sitting up.

6 - The child scores if he completes the above sequence but may have some difficulty in performing some or all of the tasks.

5 - The child scores if he completes the above sequence but moves awkwardly and/or with great difficulty.

4 - The child scores if he completes the above sequence but may need light facilitation in some of the sequence and in coming to a four point and/or in sitting up.

3 - The child scores if he needs light facilitation for some of sequence and moderate facilitation in coming to a four point and/or in sitting up.

2 - The child scores if he needs moderate facilitation for most of the sequence and heavy facilitation in coming to a four point and/or in sitting up.

1 - The child scores if he needs heavy facilitation for most of the sequence, and must be moved passively to a four point and to a sit.

0 - The child scores if he is able to initiate some of the sequence but must be moved passively to complete most of the sequence.

Task 2 SITTING

The child will be asked to sit in the testing chair, and a box, if necessary, will be placed under his feet. The child must maintain the position for a reasonable length of time. The test administrator will say, "I want you to sit in this chair for a little while and show me how nicely you can sit with your feet flat, your back straight, and your head up. Put your hands in your lap, on the chair, or on your legs. I will help you if you need help."

8 - The child scores if his feet are flat, his head and trunk erect, his hips are well flexed, his hands under control either on the chair, on his legs, or in his lap. His sitting must appear to look nearly normal and completely safe.

7 - The child scores if his feet have contact with the floor, but are not necessarily flat, his head and trunk deviate from the erect position slightly either forwards, backwards, or sidewise, yet his seat remains firmly fixed on the chair, his arms under fairly good control. His sitting must appear safe.

6 - The child scores if his feet have intermittent contact with the floor, his trunk deviates rather severely forward or to the side, but he must be able to lift his head. His seat remains fixed on the chair, his arms may be used to the side or in front for balance. His sitting will not appear entirely safe, so the tester may have to stand in the vicinity of the child to insure safety.

5 - The child scores if his seat maintains some contact with the chair. His arms and legs may be flying in the air. His head may be severely forward or to the side. The child will look extremely awkward (as if he sits with great difficulty), yet he will stay on the chair for a reasonable length of time. His sitting will not appear entirely safe, so the tester may have to stand in the vicinity of the child to insure safety.

4 - The child scores if he sits as in Item 5 but needs the additional help of the test administrator to give environmental (or indirect) support to maintain the position for a reasonable length of time.

3 - The child scores if he sits unstrapped with no facilitation at the hip, yet he needs a light touch at the shoulders and/or knee to help him maintain the position for a reasonable length of time.

Task 2 - Sitting
Continued

2 - The child scores if he sits unstrapped with no facilitation at the hip, yet he needs a heavy touch at the shoulders and/or knee to help him maintain the position for a reasonable length of time.

1 - The child scores ifhhe sits strapped at the hips and needs moderate facilitation at the shoulders or knee to help him maintain for a reasonable length of time.

0 - The child scores if he sits strapped at the hips and needs heavy facilitation at the shoulders and/or knees to maintain the position for a reasonable length of time.

Task 6a

EATING - TESTING SITTING POSTURE AND ARM MOVEMENT

The child will be placed at a table in the testing chair. A box will be placed under his feet if necessary. The test will occur at the normal meal time of the child with his regular diet, and a standard soup spoon, or standard utensils. The child will use preferred hand. The test administrator will say, "I want to see how nicely you can eat by yourself. If you need help, I will help you."

8 - The child scores if he sits well freely, completes entire process easily and unassisted. Uses plate, not attached to table, and fork, knife, and spoon. Two utensils must be used concurrently in conventional manner.

7 - The child scores if he sits well freely, completes entire process unassisted quite easily with little spillage. The Child uses a bowl and a spoon.

6 - The child scores if he sits freely but somewhat awkwardly, completes process with some difficulty, with some spillage and may need help in fixing his bowl. The child eats with a spoon.

5 - The child scores if he sits freely, but awkwardly with much spillage, completes process with considerable difficulty and may need help in fixing his bowl. The child eats with a spoon.

4 - The child scores if he needs light facilitation at shoulders or knees to help maintain the sitting position and/or if he needs light facilitation at the hand or wrist to help guide the spoon to the mouth.

3 - The child scores if he needs moderate facilitation at shoulders or knees to help maintain the sitting position and/or needs moderate facilitation at the hand or wrist to help guide the spoon to the mouth.

2 - The child scores if he needs heavy facilitation (but not a hips) to help maintain the sitting position and/or needs heavy facilitation to help the hand to mouth movement.

1 - The child scores if he must be strapped and needs moderate facilitation to help maintain the sitting position and/or needs moderate facilitation to help the hand to mouth movement.

Task 6a - Eating - Testing Sitting Posture and Arm Movement
Continued

0 - The child scores if he needs to be strapped and needs heavy facilitation to help maintain the sitting position and needs heavy facilitation to help the hand to mouth movement.

Task 6b

EATING - TESTING CHEWING, MOUTH CLOSURE, SWALLOWING

Conditions are the same as in task 6a. This test can be evaluated through observation.

8 - The child scores if he chews and swallows normal bite size food, with no tongue thrust, and no spillage from mouth.

7 - The child scores if he chews and swallows normal bite size food, with some tongue thrust and some spillage from mouth, or improper mouth closure with some spillage from mouth.

6 - The child scores if he does not chew bite size food completely, swallows well, but swallows whole chunks sometimes. May have some tongue thrust and some spillage from mouth, or improper mouth closure with some spillage from mouth.

5 - The child scores if he does not chew bite size food but mashes it or swallows whole chunks sometimes. May have considerable tongue thrust and much spillage from mouth or improper mouth closure with much spillage from mouth.

4 - The child scores if he swallows pureed food without tongue thrust and with no spillage. Attempts to chew if given bread or crackers.

3 - The child scores if he swallows pureed food with some tongue thrust or improper mouth closure and with some spillage. If given bread or crackers will mash it against the hard palate.

2 - The child scores if he swallows pureed food with much tongue thrust or improper mouth closure and with much spillage. Bread or cracker must be soaked in milk before swallowing possible.

1 - The child scores if he has some difficulty in opening mouth as spoon approaches and/or some difficulty in opening mouth for removal of spoon. Swallows pureed food with some facilitation at chin for closure. Without facilitation spillage would be very great.

0 - The child scores if he has great difficulty in opening mouth as spoon approaches, and in opening mouth for removal of spoon. Or child has great difficulty in keeping pureed food in mouth for swallowing and/or he must have mouth held shut and head tipped back for swallowing. All this would be accompanied by great spillage without facilitation.

Task 3 STANDING UP

The child will be placed in the testing chair in front of a chinning bar. The child will be asked to stand up. He may stand up without grabbing the bar or he may grab the bar to help him stand up. (The child must achieve the stand in a reasonable length of time.) The test administrator will say, "I want you to stand up. You may grab the bar to help yourself up if you have to and you may hold on to it while you stand. I will help you if you need help."

8 - The child scores if he stands up unassisted without grabbing the bar and remains standing independently. The child's appearance while standing does not affect the scoring.

7 - The child scores if he stands up easily by grabbing the bar and remains standing easily. He must appear completely safe.

6 - The child scores if he stands up with some difficulty by grabbing the bar and remains standing with some difficulty but unassisted. The tester may stand by the child to insure safety.

5 - The child scores if he stands up awkwardly and/or with great difficulty by grabbing the bar and remains standing unassisted, but the tester will have to stand by the child to insure safety.

4 - The child scores if he stands up awkwardly and/or with great difficulty by grabbing the bar and remains standing but requires indirect facilitation at some time during the task.

3 - The child scores if he stands up by grabbing the bar and remains standing with light facilitation at some time during the task. Light facilitation could mean a light touch so that the grasp is maintained, a touch on the shoulder or hips to steady the child, or any light touch to encourage movement and maintenance.

2 - The child scores if he stands up by grabbing the bar and remains standing with moderate facilitation with one facilitator, at some time during the task. Moderate facilitation means the application of moderate pressure at any of the following points: shoulders, hips, feet, knees, elbows, or wrists. The facilitator would be able to hold the child at these points for a longer period of time than is permissible under the definition of light facilitation.

Task 3 - Standing Up
Continued

1 - The child scores if he stands up by grabbing the bar and remains standing with moderate facilitation and two facilitators at some time during the task. Moderate facilitation means the application of moderate pressure at any of the following points: shoulders, hips, feet, elbows, or wrists. The two facilitators would be able to hold the child at these points for a longer period of time and help initiate some of the movement. The child, however, would be more active in achieving and maintaining than he would be in 0.

0 - The child scores if he stands up by grabbing the bar and remains standing with heavy facilitation applied by two facilitators at some time during the task. Heavy facilitation would mean the application of heavy pressure at the stated body parts to help achieve the position and/or maintain it. For instance, the child's grasp might have to be fixed and held, the child's knees might have to be helped to extension and held in extension, the elbows might have to be helped to extension and held in extension, the feet might have to be held on the floor. In other words, a great deal of passive moving of the child would be necessary.

Task 4 SITTING DOWN FROM A STAND

The child will be placed in a good standing position in front of a chinning bar (in a doorway). The child will be asked to sit down in the testing chair. He may sit down without grabbing the bar or he may grab the bar to help him sit down. The child must sit down from the stand in a reasonable length of time and maintain it for a reasonable length of time. The test administrator will say, "I want you to sit down. You may grab the bar and hold on to help yourself down."

8 - The child scores if he sits down unassisted without grabbing the bar and remains sitting. The child's appearance while sitting independently does not affect the scoring.

7 - The child scores if he sits down easily while grabbing the bar and remains seated for a reasonable length of time with little difficulty. He must appear completely safe throughout the task.

6 - The child scores if he sits down with some difficulty while grabbing the bar and remains seated with some difficulty but unassisted. The tester may have to stand by the child to insure safety.

5 - The child scores if he sits down awkwardly and/or with great difficulty while grabbing the bar and remains seated unassisted but tester will have to stand by the child to insure safety.

4 - The child scores if he sits down awkwardly and/or with great difficulty while grabbing the bar and remains seated but requires indirect facilitation at some time during the task.

3 - The child scores if he sits down and remains seated while grabbing the bar, with light facilitation at some time during the task. Light facilitation could mean a light touch so that the grasp is maintained, a touch on the shoulder or hips to steady the child, or any light touch to encourage movement or maintenance.

2 - The child scores if he sits down and remains seated while grabbing the bar with one facilitator applying moderate facilitation at some time during the task. Moderate facilitation means the application of moderate pressure at any of the following points: shoulders, hips, feet, knees, elbows, or wrists. The facilitator would be able to hold the child at these points for a longer period of time than is permissible under the definition of light facilitation.

Task 4 - Sitting Down From a Stand
Continued

1 - The child scores if he sits down and remains seated while grabbing the bar with two facilitators applying moderate facilitation at some time during the task. Moderate facilitation is defined in Item 2. The two facilitators would be able to hold the child at these points for a longer period of time and help him initiate some of the movement. The child would be more active in achieving and maintaining than he would be in Item 0.

0 - The child scores if he sits down and remains seated while grabbing the bar with two facilitators applying heavy facilitation during the task. Heavy facilitation means the application of heavy pressure at the stated body parts to help achieve and/or maintain the position. A great deal of passive moving of the child would be necessary.

Task 5

WALKING TEN FEET

The child will be asked to walk ten feet which will be marked on the floor. He will be given a chair with rungs for grabbing to push if he needs it. Splints will be applied if necessary. The child will be put in a standing position and will be trained to know at this point whether splints or another facilitator will be necessary. The administrator will say, "I want you to walk from this line to that line. If you need to use this chair for support, you may. I will be here to help you if you need it."

8 - The child scores if he walks unassisted without the chair for ten feet, and is able to stop and stand without assistance.

7 - The child scores if he walks with a chair with a fairly steady gait and with his head and trunk up or he walks as in 8 but cannot stop and stand unassisted.

6 - The child scores if he walks with a chair with an uneven gait and/or with some difficulty, his head and trunk up. The tester may have to walk by child to insure safety.

5 - The child scores if he walks with a chair extremely awkwardly and/or with great difficulty. The tester will have to walk by child to insure safety.

4 - T he child scores if he walks with a chair awkwardly and/or with great difficulty and needs indirect facilitation.

3 - The child scores if he walks with a chair and needs splints on his arms or legs and no facilitator. Or he scores if he walks with a chair needing one facilitator at arms or legs, but no splints. The chair should not be weighted, (ie. 1 facilitator).

2 - The child scores if he walks with a chair and needs splints on his arms or legs and one facilitator at arms or legs. The chair may be weighted, (ie. 2 facilitators).

1 - The child scores if he walks with a chair and needs splints on his arms and legs and one facilitator at arms or legs. The chair will be weighted,(ie. 3 facilitators).

0 - The child scores if he walks with a chair and needs splints on his arms and legs and two facilitators at arms and legs. The chair will be weighted, (ie. 4 facilitators).

Task 7

DRINKING WITH TWO HANDS - TESTING SITTING POSTURE AND ARM MOVEMENT

The child will be placed at a table in the testing chair. A box will be placed under his feet if necessary. The test may occur at any convenient time in the child's day. A two-handled plastic cup will be used containing water or milk or juice or Kool-aid up to the black line, half-full. Both hands must be on the cup handles. The test administrator will say, "I want to see how nicely you can drink by yourself. If you need help, I will help you."

8 - The child scores if he sits freely, completes entire process easily and unassisted.

7 - The child scores if he sits freely and completes entire process quite easily and with little spillage.

6 - The child scores if he sits freely but somewhat awkwardly and completes process with some difficulty and some spillage and may need help in fixing his cup while initiating grasp.

5 - The child scores if he sits awkwardly but freely, completes process with considerable difficulty and much spillage and may need help in fixing his cup while initiating grasp.

4 - The child scores if he needs light facilitation at shoulders or knees to help maintain the sitting position and/or if he needs light facilitation at hands or wrist or cup to help guide the cup to the mouth. May need help in fixing his cup while initiating grasp.

3 - The child scores if he needs moderate facilitation at shoulders or knees to help maintain the sitting position and/
o or needs moderate facilitation at the hand or wrist or cup to help guide the spoon to the mouth. May need help in fixing his cup while initiating grasp.

2 - The child scores if he needs heavy facilitation to help maintain the sitting position and/or needs heavy facilitation to help the hands to mouth movement and maintain grasp.

1 - The child scores if he must be strapped and needs moderate facilitation to help maintain the sitting position and/or needs moderate facilitation to help the hands to mouth movement and maintain grasp.

Task 7 - Drinking with two hands - Testing sitting posture and arm movement.
Continued

0 - The child scores if he needs to be strapped and needs heavy facilitation to help maintain the sitting position and needs heavy facilitation to help the hands to mouth movement and maintain grasp.

Task 8 HAND SKILLS

The child will be placed in the testing chair at a table. A box will be placed under his feet if necessary. The child may be facilitated in any way to stabilize his sitting but his head and hands must not be facilitated. The test will be given from 0 to 8 in order of difficulty. Completion of the task will be the only criterion for scoring, not the manner in which the task is completed. The tester will demonstrate what is expected of the child.

0 - The child scores if he is unable to grasp stick fixed in the air by the tester.

1 - The child scores if he grabs one stick in one hand or the other and maintains grasp for a reasonable length of time. Both sticks will be fixed in the air by the tester.

2 - The child scores if he grabs one stick in one hand and another stick in the other hand and maintains grasp a reasonable length of time. Both sticks will be fixed in the air by the tester.

3 - The child scores if he grabs one stick in one hand and another stick in the other hand (both sticks fixed in the air by tester) and bangs both sticks two or three times on the table. The bangs need not be simultaneous (two sticks need not hit the table together.)

4 - The child scores if he grabs a stick (fixed in the air by tester) with one hand (the tester then releases stick) and the child grabs the same stick with his other hand, maintains the grasp, and then releases at least one hand upon command. The stick must be held at a reasonable distance from the body.

5 - The child scores if he picks up from the table the large stick in one hand and the large block in the other hand and then touches the two objects together at a reasonable distance from the body and then replaces them on the table. The task may be repeated twice with the tester switching the starting position of the block and stick.

6 - The child scores if he picks up from the table the large stick in one hand and the large block in the other hand and either places the block on the stick or puts the stick through the hole in the block and holds assembled piece in one hand, and then places the assembled piece on the table. The task may be repeated twice with the tester switching the starting position of the block and stick. The whole task should be done at a reasonable distance from the body.

Task 8 - Hand Skills
Continued

7 - The child scores if he picks up from the table the small stick in one hand and the small disc in the other hand; and then either places the disc on the stick or puts the stick through the hole in the disc and holds the assembled piece in one hand and then places the assembled piece on the table. The task may be repeated twice with the tester switching the starting position of the stick and disc. The whole task should be done at a reasonable distance from the body.

8 - The child scores if he picks up the penny with his fingers from the table in one hand and transfers the penny to the fingers of the other hand and places the penny back down on the table. The whole task should be done at a reasonable distance from the body.

Task 9 WRITING

The child will be placed in the testing chair at a table. A box will be provided for his feet if necessary. The child may be facilitated at any point to stabilize his sitting but may not be facilitated at the writing hand, arm, or at the head. The test will be given from 0 to 8 in order of difficulty. The child scores if he completes 75% of the task reasonably well in a reasonable length of time. The child may use preferred hand or exchange hands. The paper will be fixed to the table. The child will use a large crayon. The examiner will demonstrate each item before child begins. Any necessary further instructions may be given since the child's motor skills are being tested, not his intellectual abilities.

0 - The child scores if he cannot grab the crayon held by the tester.

1 - The child scores if he can color in the square drawn on the side nearest his preferred hand. The paper will have a triangle and a square drawn on it. The tester will say, "Now I want you to color in the square."

2 - The child scores if he can put the point of his crayon on two dots already drawn on the paper. The paper will have six large randomly placed dots drawn on it.

3 - The child scores if he can connect the two large red dots with a vertical line drawing from top to bottom. The paper will have two large dots placed ten inches apart drawn on it. The tester will say, "Now I want you to draw a line from the top dot here to the bottom dot here. Try to make it a nice straight line."

4 - The child scores if he can connect the two large red dots with a horizontal line, drawing from left to right. The paper will have two large red dots placed ten inches apart drawn on it. The tester will say, "Now I want you to draw a line from this dot on the left side of the paper to this dot on the right side of your paper. Try to make it a nice straight line."

5 - The child scores if he cannects the four large red dots with two diagonal lines. The dots are drawn on the paper ten inches apart. The tester will say, "Now I want you to draw a line between these two dots like this and these two dots like this." The tester will then draw a line down from the top left dot to the bottom right dot and then will draw a line from the bottom left dot up to the top right dot.

Task 9 - Writing
Continued

6 - The child scores if he connects five large red dots in a diagonal zig-zag pattern, drawing from left to right. The dots will be drawn on the paper six inches apart. The tester will say, "Now I want you to draw a line between these dots like this." She will then demonstrate the zig-zag movement starting from the bottom left dot up, down, up, down and ending at the bottom right dot.

7 - The child scores if he draws a series of vertical lines between two parallel lines spaced two and a half inches apart on the paper. Two large black lines will be drawn on the paper, centered in the middle and parallel to each other, two and a half inches apart. The tester will say, "Now I want you to draw as many lines like this as you can. You start over here on the right side of your paper and make the lines go across the paper like this." The tester will then make the first few vertical lines on the paper to demonstrate what is expected of the child.

8 - The child scores if he draws a series of arcs from left to right between two parallel lines spaced two and one half inches apart on the paper. Two large black lines will be drawn on the paper, centered in the middle and parallel to each other, two and one half inches apart. The tester will say, "Now I want you to draw a series of arcs like this. You start over here on the right side of your paper and make the lines go up and around and down like this."

Task 10 DRESSING

This test includes the donning of a button front shirt and boxer shorts. The child will start the task with only his underpants on. The test can be taken in any position or setting.

8 - The child scores if he dresses himself completely. This will include buttoning. The tester will fold the clothing and place it in a pile next to the child.

7 - The child scores if he dresses himself completely and attempts but does not complete the buttoning. The tester will fold the clothing and place it in a pile next to the child.

6 - The child scores if he dresses himself completely with some degree of difficulty. The tester will place the clothing unfolded next to the child. Buttoning not completed.

5 - The child scores if he dresses himself completely with great difficulty, and performs the task awkwardly. Buttoning not completed. The tester will place the clothing unfolfed next to the child.

4 - The child scores if he needs light facilitation in initiating and/or completing the task. In other words, the examiner assists in getting the pants over his feet, the child independently pulls up his pants, the examiner assists in sliding the pants over the child's seat.

3 - The child scores if he performs as in 4 but needs light facilitation throughout the task to re-establish grasp on the pants and in completing the pulling down of the shirt.

2 - The child scores if he directs the legs toward and into the legholes and initiates grasp of the pants. The examiner facilitates maintenance of the grasp while the child completes the pulling on of the pants. The child directs his arms toward and into the armholes, lifts his arms for the shirt to clear his head. The child may need facilitation to straighten his arms. The examiner completes the pulling down of the shirt.

1 - The child scores if he initiates some of the action by the following (tester holding clothing): he directs his arms toward and into the armholes, he directs his legs toward and into the leg holes, he lifts his seat to allow the pants to be pulled up to his waist. And he needs heavy facilitation to complete the task.

0 - The child scores if he must be dressed almost entirely passively.

APPENDIX B.2

Wolfe-Bluel Socialization Inventory

This instrument is designed to assess the social development of neuro-muscularly handicapped children and is particularly appropriate for use in such disorders as Cerebral Palsy. The Inventory is designed to be administered and scored through the utilization of informant sources. Reassessments at periodic intervals, if showing increased scores, should indicate social growth and development during the period under review.

Administration: The informant should rate this particular child according to whether or not he (or she) has been observed by the informant to perform the behaviors noted in the items on this questionnaire. If he has never been seen to exhibit the behavior, mark "0" in the blank space provided. A "0" should also be given if the item does not, to the informant's knowledge, apply to the child or if he has not been exposed to that particular situation. If he performs this particular item only rarely, score "1" in the blank space. If he exhibits the particular behavior more than just rarely but not most of the time, mark a "2" in the blank space. If the child shows a particular behavior most of the time, or always, write a "3" in the blank space. In summary, the scores are as follows:

0 - Never
1 - Rarely
2 - Sometimes
3 - Usually

This information is to be completed by an informant who knows the child well, such as an institutional aide, teacher, therapist, etc. No informant should be used who is not confident of his observations.

Note: (to person tabulating scores): Items 35, 40, 41 and 49 should have the scores reversed since a lower score indicates a more desirable behavior. On these items reverse the marked scores as follows:

"3" to "0"
"2" to "1"
"1" to "2"
"0" to "3"

The informant should disregard this instruction and rate according to the definitions!!

SELF CARE

_____ 1. Indicates when pants are wet or soiled:

_____ 2. Has bowel movements in toilet:

_____ 3. Urinates in toilet:

_____ 4. Remains dry entire night:

_____ 5. Shows discomfort when other clothing is wet or soiled:

_____ 6. Attempts to brush teeth after meals:

_____ 7. Shows distaste for dirty hands and/or face:

ENVIRONMENTAL ORIENTATION

_____ 8. Recognizes familiar people:

_____ 9. Shows awareness of danger:

_____ 10. Responds to facial expressions appropriately (returns smiles, etc.)

_____ 11. Is able to differentiate male from female:

_____ 12. Shows preference for some things (such as foods, colors, clothing, places, etc.):

_____ 13. Identifies own image in a mirror:

_____ 14. Regards other family members as "special" to him:

_____ 15. Conscious of adult approval or disapproval:

_____ 16. Anticipates with excitement upcoming special events:

_____ 17. Uses play or learning materials as they should be used (meaningfully attends to music, T.V. programs, pictures, books, etc.):

INDEPENDENCE

_____ 18. Avoids hazards within his physical capabilities:

_____ 19. Tries to accomplish tasks presented to him if someone is there to give help and/or encouragement:

Independence (Cont.)

_____ 20. Can decide between two things independently (ie. can choose when asked, "Do you want this toy or that one?" or "chocolate or strawberry?"

_____ 21. Occupies self unattended (ie. plays by self at table when given an activity):

_____ 22. Initiates own play activities when able:

_____ 23. Can overcome or solve simple problems on his own:

_____ 24. Works toward completing tasks independently (ie. physical exercises, school activities):

_____ 25. Chooses tasks or activities to complete during free time:

COMMUNICATION

_____ 26. Gets attention by voice or speech:

_____ 27. Knows the names of familiar people:

_____ 28. Calls to or attracts attention of others by name:

_____ 29. Asks or indicates in some way that he has to go to the toilet when real need is present:

_____ 30. Asks for help, using some form of recognizable speech:

_____ 31. Indicates apology at appropriate times:

_____ 32. Says,"Please" and/or "Thank you" without prompting at appropriate times:

_____ 33. Responds to questions asked of him not necessarily correctly, but in a way which shows understanding of the question:

_____ 34. When unable to answer a question, admits that he doesn't know:

EMOTIONAL MATURITY

_____ 35. Screams or cries inappropriately (ie. when he doesn't get his own way, after a slight injury, etc.):

Emotional Maturity (Cont.)

_____ 36. Shows affection at appropriate times:

_____ 37. Shows anger at appropriate times:

_____ 38. Responds positively to praise:

_____ 39. Responds to discipline appropriately (ie. takes a scolding seriously):

_____ 40. Exhibits self-destructive behavior (such as biting self, head-banging, etc.):

_____ 41. Exhibits overt aggressive behavior (such as kicking or biting others, etc.):

_____ 42. Is trusting of adults and children that he is familiar with:

_____ 43. Displays a sense of humor appropriately:

_____ 44. Is capable of being reasoned with and can change his behavior accordingly:

GROUP INTERACTION

_____ 45. Shows interest when others tell of their experiences:

_____ 46. Appears aware of how other children feel towards him:

_____ 47. Plays simple games (ie. guessing games, playing ball with others, etc.) within limits of physical capabilities:

_____ 48. Appears willing to wait his turn:

_____ 49. Intentionally damages property of others:

_____ 50. Competitive games: Participates in competitive games appropriate to physical capabilities (ie. team games, contests in physical and learning activities):

_____ 51. Shares toys or personal items within the limits of his physical capabilities:

_____ 52. Indicates delight, happiness or approval at other children's accomplishment or good work:

_____ 53. Makes friends with other children upon his own initiative.

Group Interaction (Cont.)

_____ 54. Helps others within his physical capabilities:

_____ 55. Shows concern for others (ie. if another child is sick):

INTELLECTUAL GROWTH

_____ 56. Follows simple instructions:

_____ 57. Attends to stories:

_____ 58. Pays attention to learning situations (ie. school activities or learning daily living skills):

_____ 59. Can distinguish up, down and middle:

_____ 60. Can distinguish left and right:

_____ 61. Follows complex instructions: (a complex instruction is one containing two or more parts such as "Stand up, and clap your hands and sit down."

_____ 62. Shows imagination or creativity (making up a story, play-acting, using object in an imaginative "pretend" way, etc.):

APPENDIX B.3

Raw Data from the Field Test of the ECFAT and the WBSI

Several lists of data follow. Each line of every list is a printing of a data card that was used in the analyses. The first five columns of every card show the month in which the evaluation was made. The next two columns indicate the subject's number, which is not necessarily the same on the two instruments or on the two testing occasions. The next two columns show the rater in the case of the ECFAT (01 = Judy Sorenson, 02 = Sharon Wolfe) or the data set in the case of the WBSI.

For the ECFAT, the next 11 numbers are the ordered subtest scores. If there is another number, it is the total of these 11 subtests. If there are two additional numbers, they are the month and year of the subject's birth. For the WBSI, the next 18 columns are the ordered scores for items 1-18. The next card for each subject has the same format for items 17-36; the third card has items 37-54; and the fourth card has items 57-62. Items 35, 40, 41, and 49 must be reverse scored ($X^1 = 3-X$). The fifth card for each subject has the identifying information followed by the seven subtest totals and the grand total.

Table B.3.1. Raw Data for the ECFAT--Field Test 1, Rater 1.

111703701	2	8	7	7	8	5	8	8	8	8	8	8	8
111704001	2	8	7	7	8	4	8	8	8	8	8	8	8
111704201	2	8	7	7	8	4	8	8	8	8	8	8	8
111700101	5	7	7	7	7	1	8	8	8	8	8	8	8
111700201	5	7	7	7	7	1	8	8	8	8	8	8	8
111700301	5	7	7	7	7	1	8	8	8	8	8	8	8
111700401	5	7	7	7	7	1	8	8	8	8	8	8	8
111700501	5	7	7	7	7	1	8	8	8	8	8	8	8
111700601	5	7	7	7	7	1	8	8	8	8	8	8	8
111700801	5	7	7	7	7	1	8	8	8	8	8	8	8
111700901	5	7	7	7	7	1	8	8	8	8	8	8	8
111701001	5	7	7	7	7	1	8	8	8	8	8	8	8
111701901	5	7	7	7	7	1	8	8	8	8	8	8	8
111702001	5	7	7	7	7	1	8	8	8	8	8	8	8
111702101	5	7	7	7	7	1	8	8	8	8	8	8	8
111702201	5	7	7	7	7	1	8	8	8	8	8	8	8
111702301	5	7	7	7	7	1	8	8	8	8	8	8	8
111702401	5	7	7	7	7	1	8	8	8	8	8	8	8
111702501	5	7	7	7	7	1	8	8	8	8	8	8	8
111702601	5	7	7	7	7	1	8	8	8	8	8	8	8
111702701	5	7	7	7	7	1	8	8	8	8	8	8	8
111702801	5	7	7	7	7	1	8	8	8	8	8	8	8
111702901	5	7	7	7	7	1	8	8	8	8	8	8	8
111703001	5	7	7	7	7	1	8	8	8	8	8	8	8
111703101	5	7	7	7	7	1	8	8	8	8	8	8	8
111703201	5	7	7	7	7	1	8	8	8	8	8	8	8
111703301	5	7	7	7	7	1	8	8	8	8	8	8	8
111703401	5	7	7	7	7	1	8	8	8	8	8	8	8
111703501	5	7	7	7	7	1	8	8	8	8	8	8	8
111703601	5	7	7	7	7	1	8	8	8	8	8	8	8
111704101	5	7	7	7	7	1	8	8	8	8	8	8	8
111704301	5	7	7	7	7	1	8	8	8	8	8	8	8
111704401	5	7	7	7	7	1	8	8	8	8	8	8	8
121704501	5	7	7	7	7	1	8	8	8	8	8	8	8
121704601	5	7	7	7	7	1	8	8	8	8	8	8	8
121704701	5	7	7	7	7	1	8	8	8	8	8	8	8
121704801	5	7	7	7	7	1	8	8	8	8	8	8	8
121704901	5	7	7	7	7	1	8	8	8	8	8	8	8
121705001	5	7	7	7	7	1	8	8	8	8	8	8	8
111705101	5	7	7	7	7	1	8	8	8	8	8	8	8
121705201	5	7	7	7	7	1	8	8	8	8	8	8	8
121705301	5	7	7	7	7	1	8	8	8	8	8	8	8
121705401	5	7	7	7	7	1	8	8	8	8	8	8	8
121705501	5	7	7	7	7	1	8	8	8	8	8	8	8
121705601	5	7	7	7	7	1	8	8	8	8	8	8	8
121705701	5	7	7	7	7	1	8	8	8	8	8	8	8
121705801	5	7	7	7	7	1	8	8	8	8	8	8	8
121705901	5	7	7	7	7	1	8	8	8	8	8	8	8
121706001	5	7	7	7	7	1	8	8	8	8	8	8	8
121706101	5	7	7	7	7	1	8	8	8	8	8	8	8
121706201	5	7	7	7	7	1	8	8	8	8	8	8	8

Table B.3.2. Raw Data for the ECFAT--
Field Test 1, Rater 2.

Table B.3.3. Raw Data for the ECRAT-Field Test 1 and 2, Raters 1 and 2.

111700201	5	7	4	5	1	6	7	3	1	7	4	50	1	64	
111700202	6	7	4	4	1	6	7	3	1	7	4	50			
037723201	8	7	2	2	1	7	8	3	1	4	4	54			
037723202	8	6	3	5	1	7	7	3	4	8	4	56			
111703901	8	8	7	7	8	8	8	8	8	8	8	85	11	61	
111703902	8	8	7	7	8	8	8	8	8	8	8	86			
037723301	8	8	6	7	4	8	8	8	8	8	8	81			
037723302	8	8	6	6	5	8	8	8	8	8	8	81			
111703701	8	8	7	7	8	8	8	8	8	8	8	86	8	59	
111703702	8	8	7	7	8	8	8	8	8	8	8	85			
037723401	8	8	8	8	8	8	7	8	8	8	8	87			
037723402	8	8	8	8	8	8	7	8	8	8	8	87			
111700401	3	2	2	3	1	1	7	1	8	5	3	36	8	59	
111700402	3	2	2	3	1	1	7	1	8	5	2	35			
037723601	4	1	0	0	0	1	7	4	7	0	4	28			
037723602	4	1	0	0	0	1	7	1	7	0	4	25			
111700501	5	7	0	0	0	0	7	8	6	8	1	50	6	56	
111700502	5	7	0	0	0	0	7	8	6	8	1	50			
037723701	7	6	0	0	0	0	8	8	8	8	4	57			
037723702	8	7	0	0	0	0	8	8	8	8	4	59			
111700301	5	7	2	5	1	7	8	4	8	6	4	58	4	64	
111700302	5	7	2	2	1	7	8	4	8	6	4	54			
037723801	5	4	6	7	2	7	7	8	8	8	4	70			
037723802	6	8	5	6	1	7	7	8	8	8	3	67			
111704201	8	8	7	7	8	8	8	8	8	8	8	86	3	60	
111704202	8	8	7	7	8	8	8	8	8	8	8	86			
037723901	8	8	8	8	7	8	8	8	8	8	8	87			
037723902	8	8	8	8	7	8	8	8	8	8	8	87			
111704301	8	8	7	7	6	8	8	8	8	8	8	84	9	58	
111704302	8	8	7	7	6	8	8	8	8	8	8	84			
037724001	8	8	7	7	6	8	8	8	8	8	8	84			
037724002	8	8	7	7	6	8	8	8	8	8	8	84			
111704401	8	8	7	7	7	8	8	8	8	8	6	83	11	61	
111704402	8	8	7	7	6	8	8	8	8	8	6	82			
037724101	8	8	7	7	6	8	8	8	8	8	8	84			
037724102	8	8	7	7	6	8	8	8	8	8	8	84			
111701101	8	8	8	8	8	8	7	8	8	8	8	87	1	64	
111701102	8	8	8	8	8	8	7	8	8	8	8	87			
037724201	8	8	8	8	8	8	8	8	8	8	8	88			
037724202	8	8	8	8	8	8	8	8	8	8	8	88			
111704001	8	8	7	8	6	8	8	8	8	8	8	85	1	62	
111704002	8	8	7	7	7	8	8	8	8	8	8	85			
037724301	8	8	7	8	7	8	8	8	8	8	8	85			
037724302	8	8	7	7	6	8	8	8	8	8	8	84			
111700501	3	7	4	4	0	8	7	8	8	7	4	60	11	60	
111700502	3	7	4	4	0	8	7	8	8	7	4	60			
037724401	7	8	3	4	2	8	8	8	8	7	8	71			
037724402	7	8	5	5	0	8	8	8	8	7	8	72			
111700101	8	8	7	5	7	6	7	8	8	8	3	4	71	12	62
111700102	8	8	7	5	5	5	7	8	8	8	3	4	68		
037724501	8	8	8	7	7	6	7	8	8	8	7	7	81		
037724502	8	8	7	7	7	6	7	8	8	8	7	7	80		
111702001	5	7	7	7	1	8	8	8	8	8	6	73	1	58	
111702002	5	7	5	7	1	8	8	8	8	8	5	70			
037720101	6	7	4	7	2	8	8	8	8	8	6	72			
037720102	5	7	5	5	2	8	8	8	8	8	6	70			
111702901	7	7	6	7	2	8	8	8	8	8	4	73	9	56	
111702902	7	7	6	6	2	8	8	8	8	8	4	72			
037720201	5	7	3	4	1	8	8	8	8	7	7	66			
037720202	8	7	3	4	2	8	8	7	8	7	7	69			
111703001	5	7	6	7	3	4	5	5	5	5	6	58	1	58	
111703002	5	7	6	7	3	4	5	5	5	5	6	58			
037720301	5	7	6	7	2	4	6	5	7	5	6	60			
037720302	5	7	6	6	2	4	6	5	7	5	6	59			
111702501	5	7	1	3	0	8	8	8	7	8	8	63	10	56	
111702502	5	7	1	2	0	8	8	8	7	8	8	62			
037720401	5	7	2	2	1	8	8	6	7	8	6	60			
037720402	6	7	2	2	0	8	8	7	7	8	7	62			
111700801	8	8	6	7	7	8	8	8	8	8	8	84	12	63	
111700802	8	8	7	7	7	8	8	8	8	8	8	84			
037720501	8	8	7	7	7	8	8	8	8	8	8	85			
037720502	8	8	8	8	7	8	8	8	8	8	8	87			
111700901	4	6	7	6	6	7	8	8	8	6	3	69	6	62	
111700902	4	7	7	6	5	7	8	8	8	6	3	69			
037720601	5	8	5	6	5	7	8	8	8	4	6	71			
037720602	7	8	6	6	5	7	8	8	8	4	6	73			

Table B.3.3. Continued.

11/703101	0	0	0	0	0	0	3	0	0	0	0	0	3	12	60
11/703102	0	0	0	0	0	0	3	0	0	0	0	0	3		
03/720701	0	1	0	0	0	0	4	0	0	0	0	0	4		
03/720702	0	5	0	0	0	0	5	0	0	0	0	0	5		
11/702101	5	6	8	8	7	7	68	8	8	8	8	4	68	7	58
11/702102	5	6	8	8	7	7	68	8	8	8	8	4	68		
03/720801	6	6	8	8	7	7	75	8	8	8	8	5	75		
03/720802	6	8	8	8	7	7	74	8	8	8	8	5	74		
11/702401	8	8	8	8	7	7	80	8	8	8	8	7	80	8	59
11/702402	8	8	8	8	7	7	80	8	8	8	8	7	80		
03/720901	8	8	8	8	7	7	84	8	8	8	8	8	84		
03/720902	8	8	8	8	7	7	85	8	8	8	8	8	85		
11/702801	4	4	8	7	5	7	49	6	5	4	3	2	49	11	56
11/702802	4	4	2	2	8	7	50	6	5	5	4	2	50		
03/721001	2	4	2	2	7	7	57	7	6	6	4	4	57		
03/721002	2	4	2	2	7	7	55	7	6	6	4	4	55		
11/703401	4	2	2	2	6	5	25	3	3	3	1	1	25	2	60
11/703402	4	2	2	2	6	5	24	3	3	3	1	1	24		
03/721101	2	2	2	2	6	5	23	3	3	3	1	1	23		
03/721102	2	2	2	2	6	5	26	3	3	3	1	1	26		
11/701901	6	5	5	3	5	5	39	8	8	7	5	3	39	11	57
11/701902	5	5	5	3	5	5	31	8	8	7	5	3	31		
03/721201	5	5	5	3	5	5	30	8	8	7	5	3	30		
03/721202	5	5	5	3	5	5	28	8	8	7	5	3	28		
11/703501	0	0	1	1	0	0	10	0	0	0	0	0	10	3	56
11/703502	0	0	1	1	0	0	10	0	0	0	0	0	10		
03/721301	0	1	1	1	0	0	11	0	0	0	0	0	11		
03/721302	0	1	1	1	0	0	16	0	0	0	0	0	16		
11/702701	1	1	1	0	0	0	9	0	0	0	0	0	9	9	57
11/702702	1	1	1	0	0	0	9	0	0	0	0	0	9		
03/721401	1	1	1	0	0	0	9	0	0	0	0	0	9		
03/721402	1	1	1	0	0	0	9	0	0	0	0	0	9		
11/703301	5	5	8	8	7	7	76	8	8	8	8	8	76	8	57
11/703302	5	5	8	8	7	7	72	8	8	8	8	7	72		
03/721501	5	5	8	8	7	7	66	8	8	8	8	7	66		
03/721502	3	4	8	8	7	7	61	8	8	8	8	7	61		
11/701001	4	4	7	7	7	7	57	7	7	7	7	5	57	12	61
11/701002	4	5	7	7	7	7	57	7	7	7	7	5	57		
03/721601	5	5	7	7	7	7	62	8	8	8	8	5	62		
03/721602	5	5	7	7	7	7	65	8	8	8	8	6	65		
12/705801	5	4	7	4	4	3	34	4	4	3	2	2	34	11	64
12/705802	4	4	6	4	4	3	33	4	4	3	2	2	33		
03/721701	8	8	6	5	5	4	49	8	8	5	5	4	49		
03/721702	8	8	6	5	5	4	48	8	8	5	5	4	48		
12/705701	2	2	5	4	4	3	33	3	3	2	2	2	33	10	63
12/705702	2	2	5	4	4	3	32	3	3	2	2	2	32		
03/721801	4	3	7	4	4	3	46	6	5	3	3	2	46		
03/721802	4	3	7	4	4	3	40	6	5	3	3	2	40		
12/705901	8	8	9	7	7	6	69	8	8	7	7	4	69	9	60
12/705902	8	8	7	4	8	7	67	8	8	7	7	4	67		
03/721901	8	8	8	8	7	7	88	8	8	8	8	4	88		
03/721902	8	8	8	8	7	7	86	8	8	8	8	4	86		
12/705301	7	7	2	2	3	3	33	4	4	1	3	4	33	3	61
12/705302	7	7	2	2	3	3	32	4	4	1	3	4	32		
03/722001	7	7	7	7	3	3	53	5	5	4	5	4	53		
03/722002	8	8	7	7	3	3	53	5	5	4	5	4	53		
12/705501	8	8	8	8	7	7	78	7	7	7	7	6	78	4	61
12/705502	8	8	8	8	7	7	79	7	7	7	7	6	79		
03/722202	8	8	7	7	7	7	78	7	7	7	7	6	78		
03/722201	8	8	7	7	7	7	77	7	7	7	7	6	77		
12/704901	5	5	6	6	3	3	43	5	5	2	2	1	43	5	58
12/704902	5	5	6	6	3	3	41	5	5	2	2	1	41		
03/722401	7	7	7	7	7	7	54	6	6	3	3	3	54		
03/722402	7	7	7	7	7	7	59	8	8	3	3	3	59		
12/705001	8	8	7	7	6	6	75	8	8	8	8	4	75	4	58
12/705002	8	8	7	7	6	6	75	8	8	8	8	4	75		
03/722501	8	8	8	8	7	7	77	8	8	8	8	4	77		
03/722502	8	8	8	8	7	7	77	8	8	8	8	4	77		
12/704501	3	3	3	3	0	0	33	4	4	2	2	1	33	3	57
12/704502	3	3	3	3	0	0	32	4	4	2	2	1	32		
03/722601	2	4	4	4	1	3	46	7	7	7	7	3	46		
03/722602	2	4	4	4	1	3	46	7	7	7	7	3	46		
12/705601	8	8	8	8	7	7	83	8	8	8	8	8	83	5	63
12/705602	8	8	8	8	7	7	84	8	8	8	8	8	84		

Table B.3.3. Continued.

03/722701	8	8	7	8	7	8	8	8	8	8	8	86		
03/722702	8	8	7	8	7	8	8	8	8	8	8	86		
12/704601	8	7	7	7	3	3	6	2	7	6	4	60	6	59
12/704602	8	7	7	7	3	3	5	2	7	6	4	59		
03/722801	8	7	6	7	2	5	5	5	6	6	5	62		
03/722802	8	7	6	6	1	5	6	5	6	6	7	63		
12/704701	8	7	7	7	7	7	8	8	8	8	7	82	1	62
12/704702	8	8	7	7	7	7	8	8	8	8	7	83		
03/723001	8	8	7	8	0	8	7	8	8	8	8	78		
03/723002	8	8	7	8	0	8	7	8	8	8	8	78		
12/706101	8	8	7	7	6	8	8	8	8	8	8	84	7	59
12/706102	8	8	7	7	6	8	8	8	8	8	8	84		
03/723101	8	8	7	8	7	8	8	8	8	8	8	86		
03/723102	8	8	7	8	7	8	8	8	8	8	8	86		
12/706001	6	7	5	6	3	7	8	8	8	8	8	74	9	57
12/706002	7	7	5	6	3	7	8	8	8	8	8	75		
03/722101	7	7	6	6	3	8	8	8	8	8	5	74		
03/722102	7	7	6	6	3	8	8	8	8	8	7	76		
11/701601	8	8	8	8	8	8	8	8	8	7	7	85	2	64
11/701602	8	8	8	8	8	8	8	8	8	7	7	87		
03/723501	8	8	8	8	8	8	8	8	8	8	8	97		
03/723502	8	8	8	8	8	8	8	8	8	8	8	86		
12/705201	8	8	7	7	6	8	8	8	8	7	7	82	7	62
12/705202	8	8	7	7	6	8	8	8	8	7	7	82		
03/722301	8	8	7	8	7	8	8	8	8	8	8	85		
03/722302	8	8	7	8	7	8	8	8	8	8	8	85		
12/706201	8	8	7	7	7	7	7	8	8	8	7	82	6	60
12/706202	8	8	7	7	7	7	7	8	8	8	7	82		
03/722901	8	8	8	8	8	8	8	8	8	8	7	87		
03/722902	8	8	8	8	8	8	8	8	8	8	7	87		

Table B.3.4. Raw Data from the Field Test of the WBSI-Data Set 1.

.12/700101	3	3	3	2	3	2	2	3	3	3	3	3	3	3	3	2	3	
.12/700101	2	3	3	2	2	2	2	2	2	3	3	2	2	1	2	3	2	3
.12/700101	3	3	2	0	0	3	3	2	2	3	3	2	0	3	3	2	2	2
.12/700101	3	3	3	2	2	3	2	2										
.12/700101	18	29	19	19	28	23	17	15	8									
.12/700201	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3
.12/700201	2	3	2	3	1	2	0	1	2	2	0	0	0	0	0	0	0	3
.12/700201	3	3	3	0	0	3	3	3	2	2	1	3	0	0	3	1	1	0
.12/700201	1	3	3	3	3	3	3	0										
.12/700201	0	30	16	3	30	17	18	11	4									
.12/700301	3	3	0	0	3	0	3	3	3	3	3	3	0	3	2	3	2	3
.12/700301	2	3	2	2	1	1	0	3	3	3	3	3	3	3	3	3	0	3
.12/700301	3	3	3	2	0	3	3	3	3	2	2	3	0	1	2	2	3	0
.12/700301	2	2	2	2	0	0	0											
.12/700301	12	25	14	27	30	23	6	13	7									
.12/700401	3	3	3	3	3	0	0	3	3	3	3	3	3	3	3	3	3	3
.12/700401	3	3	3	3	1	1	1	3	3	3	3	3	3	3	3	2	0	3
.12/700401	2	3	3	0	0	3	2	2	2	2	3	3	0	2	2	2	1	0
.12/700401	1	1	1	1	1	0	1	0										
.12/700401	15	30	18	26	27	21	5	14	2									
.12/700501	0	0	0	0	0	0	0	3	3	3	3	3	0	0	3	3	3	3
.12/700501	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3
.12/700501	0	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	3
.12/700501	3	3	3	3	3	3	3	2										
.12/700501	0	24	24	27	27	33	20	15	5									
.12/700501	0	2	2	2	2	0	0	3	3	3	3	3	3	3	3	3	3	3
.12/700501	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	0	3
.12/700601	3	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	3
.12/700601	3	3	3	3	3	3	3	3										
.12/700501	8	30	24	25	30	33	21	17	1									
.12/700701	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3
.12/700701	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3
.12/700701	3	3	3	0	0	3	3	3	3	3	3	3	0	2	3	3	3	3
.12/700701	3	3	3	3	3	3	3	3										
.12/700701	0	30	24	27	30	32	21	16	4									
.12/700801	0	3	3	0	0	0	2	3	3	3	3	3	3	3	3	3	3	3
.12/700801	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	0	3
.12/700801	3	3	3	0	0	3	3	3	3	3	3	2	1	3	3	2	3	2
.12/700801	3	3	3	3	3	3	2	3	3									
.12/700801	8	30	24	24	30	29	20	16	5									
.12/700901	3	3	3	2	3	3	0	3	3	3	3	3	3	3	3	3	3	3
.12/700901	3	3	3	3	3	3	2	2	3	3	3	3	3	2	2	2	3	3
.12/700901	3	3	2	0	0	3	3	2	2	3	3	3	2	0	2	2	2	3
.12/700901	3	2	3	2	2	2	3	2	2									
.12/700901	17	30	22	24	25	28	16	16	2									
.12/701001	0	0	0	0	0	0	1	3	3	3	3	3	3	3	3	3	3	3
.12/701001	3	3	2	2	0	2	3	2	2	3	3	3	2	2	3	2	2	3
.12/701001	2	3	3	0	0	3	3	3	3	3	3	3	3	0	2	3	3	2	2
.12/701001	3	3	2	3	3	3	3	2	2									
.12/701001	1	30	20	22	29	30	19	15	1									
.12/701101	0	3	2	0	0	0	1	3	3	2	3	3	3	3	3	3	3	3
.12/701101	2	3	3	3	3	2	3	3	3	3	3	1	3	2	2	3	2	0	3
.12/701101	3	3	3	1	1	3	3	3	3	3	3	3	2	1	3	3	2	3	2
.12/701101	2	2	3	2	3	0	3	3										
.12/701101	5	29	22	22	28	28	16	15	1									
.12/701201	0	0	2	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0
.12/701201	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
.12/701201	0	2	0	0	0	3	3	0	0	1	0	3	0	0	0	0	0	0
.12/701201	0	0	0	2	0	0	0	0										
.12/701201	2	4	0	2	17	7	2	3	4									
.12/701301	3	3	3	0	3	0	2	3	3	3	3	2	3	3	2	3	2	2
.12/701301	3	2	2	2	2	1	2	3	3	3	3	3	2	2	2	1	0	3
.12/701301	0	3	3	2	2	0	2	2	2	2	3	3	0	1	2	2	2	3
.12/701301	3	3	2	2	2	0	2	2										
.12/701301	14	2	16	22	25	26	13	14	3									
.12/701401	0	0	3	0	3	0	2	3	2	3	3	3	3	3	0	3	3	0	2
.12/701401	3	3	0	0	1	1	0	3	3	3	3	3	3	3	3	3	0	3	
.12/701401	0	3	0	0	3	3	3	3	0	3	1	3	0	0	3	3	3	0	
.12/701401	3	3	0	3	0	2	0	0										
.12/701401	8	23	10	27	24	22	8	12	2									

Table B.3.4. Continued

12/7701501	0	1	3	0	3	0	3	3	0	3	0	2	3	3	3	3	0	0
12/7701501	0	2	0	0	0	1	0	3	3	3	3	3	2	2	3	0	0	3
12/7701501	2	3	1	0	0	1	2	2	0	0	0	0	0	0	0	2	2	0
12/7701501	0	2	0	1	0	0	0	0										
12/7701501	10	20	3	22	23	7	3	8										
12/7701601	3	3	3	3	3	0	2	3	3	3	3	3	3	3	3	3	3	3
12/7701601	2	3	3	3	2	3	2	3	3	3	3	3	0	2	2	2	1	3
12/7701601	2	3	3	3	0	3	2	2	3	3	3	2	0	2	2	2	2	2
12/7701601	3	3	3	3	2	2	2	2										
12/7701601	17	30	21	24	26	27	16	16	1									
12/7701701	2	0	2	0	0	0	0	3	0	3	3	3	3	3	3	0	3	0
12/7701701	3	3	3	2	3	3	2	3	3	2	2	3	0	2	2	3	0	3
12/7701701	0	3	3	0	3	3	2	3	0	3	3	3	2	0	3	3	0	0
12/7701701	2	3	3	3	3	0	0	0										
12/7701701	4	24	19	15	26	18	12	11	8									
01/7711801	3	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3	2	2
01/7711801	3	3	2	3	3	2	1	3	3	3	3	3	2	2	3	1	2	2
01/7711801	2	2	2	0	2	3	3	2	2	2	3	2	1	3	2	2	3	2
01/7711801	2	2	2	3	3	3	3	3										
01/7711801	19	29	19	23	21	25	19	15	5									
01/7711901	3	0	0	0	3	0	3	3	3	3	3	3	3	3	3	3	2	2
01/7711901	2	3	2	2	0	0	3	3	3	3	0	0	3	0	3	3	2	3
01/7711901	3	3	3	0	1	3	3	3	3	3	2	2	0	2	3	2	2	3
01/7711901	3	2	2	3	3	2	0	2										
01/7711401	9	29	13	12	27	28	14	13	2									
01/7712001	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
01/7712001	2	3	2	2	2	2	2	3	3	3	3	3	3	3	2	3	1	3
01/7712001	3	3	3	0	1	3	2	3	3	2	2	3	1	2	2	3	2	3
01/7712001	3	3	3	3	3	3	2	3										
01/7712001	20	30	18	26	27	27	20	16	8									
01/7712101	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	1	3
01/7712101	3	3	1	1	2	2	1	3	3	3	3	3	3	3	2	2	0	3
01/7712101	3	3	3	0	0	3	3	3	3	3	3	3	0	1	1	3	3	3
11/7712101	3	3	2	2	3	3	2	3										
01/7712101	21	27	16	25	30	29	18	16	6									
01/7712201	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	2	3
01/7712201	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3
01/7712201	3	3	3	0	0	3	3	0	3	3	3	3	0	3	3	3	2	3
01/7712201	3	3	3	3	3	3	3	3										
01/7712201	18	29	22	27	24	32	21	17	3									
01/7712301	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
01/7712301	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	0	3
01/7712301	3	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	3
01/7712301	3	3	3	3	3	3	3	3										
01/7712301	20	30	23	27	30	33	21	18	4									
01/7712401	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
01/7712401	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3
01/7712401	3	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	3
01/7712401	3	3	3	3	3	3	3	3										
01/7712401	21	30	21	27	27	33	18	17	7									
01/7712501	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
01/7712501	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	0	3
01/7712501	3	3	3	0	0	3	3	3	3	3	3	3	0	2	3	3	3	3
01/7712501	3	3	2	3	3	3	2	3										
01/7712501	21	30	22	27	30	32	19	18	1									
01/7712601	3	0	0	2	2	0	0	3	2	3	3	3	3	3	3	3	2	1
01/7712601	2	3	1	1	1	1	0	3	3	2	3	3	3	1	3	1	2	2
01/7712601	2	3	2	0	0	3	3	3	3	2	2	3	0	3	3	3	3	3
01/7712601	3	2	3	3	2	3	3	2										
01/7712601	7	28	10	22	25	31	18	14	1									
01/7712701	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2
01/7712701	2	3	3	0	2	2	2	3	3	3	3	2	2	2	3	3	3	3
01/7712701	3	3	3	0	2	3	2	2	3	0	3	2	2	2	2	3	3	2
01/7712701	2	2	2	2	3	3	2	2										
01/7712701	16	29	11	24	23	22	14	13	9									
01/7712801	3	3	3	3	2	0	0	3	3	2	3	2	3	3	3	1	2	3
01/7712801	0	2	0	0	0	0	0	3	3	3	2	2	3	3	3	0	0	0
01/7712801	0	2	2	0	0	3	2	3	2	3	2	3	0	0	1	0	1	1
01/7712801	1	2	1	2	3	3	2	0										
01/7712801	14	25	5	24	21	17	13	11	9									
[illegible]	3	1	0	2	3	1	2	3	2	3	3	3	3	3	2	2	2	2
[illegible]	3	3	3	2	2	2	1	3	1	3	2	1	3	1	2	2	2	3
[illegible]	3	2	3	1	2	2	2	2	1	3	2	1	1	2	3	2	2	2
[illegible]	2	3	1	3	3	2	1	1										

Table B.3.4. Continued

02/714401	2	3	2	2	2	2	0	0												
02/714401	14	30	22	23	26	24	11	154												
02/714501	3	3	3	1	2	3	1	3	3	2	2	3	3	2	2	2	2	3		
02/714501	2	3	3	2	2	2	3	3	3	3	3	2	0	2	2	2	0	3		
02/714501	2	3	2	0	0	2	2	2	2	2	1	2	0	2	2	2	2	2		
02/714501	2	3	3	2	3	3	1	0												
02/714501	16	24	20	20	25	22	15	142												
02/714601	2	1	0	0	0	0	0	3	3	3	3	3	3	3	2	3	3	1		
02/714601	2	3	1	0	0	1	1	3	3	2	1	2	2	1	3	3	3	2		
02/714601	2	3	1	3	0	3	2	1	3	1	2	1	0	1	0	2	0	0		
02/714601	1	2	3	3	3	3	1	0												
02/714501	3	24	9	20	17	14	15	107												
02/714701	3	2	2	2	3	1	3	3	3	3	3	3	3	3	3	3	2	2		
02/714701	3	3	1	1	3	3	1	1	3	0	1	0	2	0	3	3	2	2		
02/714701	2	3	2	0	0	2	2	3	2	2	3	2	0	2	2	2	2	0		
02/714701	2	3	2	2	3	2	2	2												
02/714701	16	29	17	13	23	22	16	136												
02/714801	2	1	2	0	0	1	0	3	3	3	3	2	3	3	3	1	1	2		
02/714801	3	3	3	0	1	1	0	2	3	0	2	2	0	0	2	0	2	2		
02/714801	2	3	3	0	0	3	2	2	2	1	1	3	0	1	2	3	0	0		
02/714801	0	3	2	2	3	3	1	0												
02/714801	6	25	13	11	24	16	14	109												
02/714901	0	1	2	0	0	0	0	3	2	3	3	3	3	3	3	3	2	2		
02/714901	2	3	2	2	1	2	3	1	3	1	0	1	0	0	3	2	2	3		
02/714901	2	3	1	1	2	2	3	2	3	2	2	2	0	2	1	2	2	2		
02/714901	1	3	3	2	3	3	2	1												
02/714901	3	28	17	11	20	22	17	118												

Table B.3.5. Raw Data for the WBSI Field Test-Data Set 2.

12/700102	0	1	3	0	0	0	2	3	2	3	3	2	3	0	3	3	0	2
12/700102	2	3	0	0	2	3	0	1	3	1	1	2	2	1	3	0	0	3
12/700102	1	3	3	0	0	3	3	3	0	3	3	3	0	0	0	2	3	3
12/700102	0	2	0	2	0	0	1	0										
12/700102	6	22	12	14	28	20	5	107										
12/700202	0	3	3	3	0	0	3	3	3	3	3	3	3	3	3	3	3	3
12/700202	3	3	3	2	2	2	3	2	3	0	3	0	3	0	2	3	0	3
12/700202	0	3	2	0	0	3	3	3	3	2	3	3	0	2	3	3	3	0
12/700202	3	3	2	2	3	3	3	0										
12/700202	12	30	21	16	26	28	16	149										
12/700302	0	0	0	0	3	0	3	3	0	3	3	3	3	3	3	3	3	2
12/700302	3	3	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0	3
12/700302	3	3	3	0	0	3	3	3	3	3	3	3	0	0	3	3	3	0
12/700302	3	3	3	3	3	3	0	0										
12/700302	6	27	8	27	30	27	15	140										
12/700402	0	0	0	0	3	0	3	3	0	3	0	0	3	3	3	3	0	0
12/700402	3	3	0	0	0	0	0	3	3	3	3	3	3	3	2	3	0	3
12/700402	3	3	3	0	0	3	2	2	3	3	0	3	0	0	3	3	3	0
12/700402	3	0	3	3	3	3	0	0										
12/700402	6	18	6	26	28	24	12	120										
12/700502	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3
12/700502	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3
12/700502	3	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	3
12/700502	3	3	3	3	3	3	3	3										
12/700502	0	30	24	27	30	33	21	165										
12/700602	0	0	0	0	0	0	0	3	3	3	3	3	3	0	3	3	3	3
12/700602	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	0	3
12/700602	3	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	0
12/700602	3	3	3	3	3	3	3	3										
12/700602	0	27	23	27	30	30	21	158										
12/700702	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
12/700702	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3
12/700702	3	3	3	2	0	3	3	3	3	3	3	3	0	3	3	3	3	3
12/700702	3	3	3	3	3	3	3	3										
12/700702	3	30	24	27	28	33	21	166										
12/700802	0	3	3	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3
12/700802	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	0	3
12/700802	3	3	3	0	0	3	3	3	3	3	3	3	0	3	3	3	3	2
12/700802	3	3	3	3	3	3	3	3										
12/700802	9	30	24	26	30	32	21	172										
12/700902	3	1	3	0	2	0	1	3	2	3	3	3	3	3	3	3	0	2
12/700902	3	3	0	0	2	1	0	3	3	3	2	3	3	2	3	2	2	2
12/700902	0	3	2	0	1	3	3	2	0	1	2	1	0	0	2	3	2	0
12/700902	3	3	0	2	0	0	1	0										
12/700902	10	26	11	24	21	17	6	115										
12/701002	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3
12/701002	3	3	3	3	3	3	0	3	3	3	0	3	3	3	3	3	1	3
12/701002	3	3	3	0	0	2	3	3	3	3	3	3	0	2	3	3	3	3
12/701002	3	3	0	3	3	3	3	0										
12/701002	0	30	21	24	28	32	15	150										
12/701102	1	3	3	0	1	0	1	3	2	3	3	2	3	0	3	3	2	2
12/701102	2	3	2	2	2	2	2	3	3	3	2	3	3	3	3	3	0	2
12/701102	3	3	3	0	0	3	3	3	3	3	3	3	0	2	2	3	2	3
12/701102	3	2	3	2	3	3	3	3										
12/701102	9	24	17	26	29	30	19	154										
12/701202	3	3	3	3	3	0	2	3	3	3	3	2	3	3	2	3	2	2
12/701202	2	3	2	1	1	2	0	3	2	0	3	2	0	0	2	3	0	3
12/701202	2	3	3	0	0	3	3	3	3	3	0	1	0	0	2	2	2	0
12/701202	0	0	2	0	2	3	0	0										
12/701202	17	27	13	15	29	16	7	124										
12/701302	0	3	3	0	0	0	2	3	2	3	3	3	3	0	3	3	2	2
12/701302	2	3	2	2	2	2	1	3	3	3	3	3	3	2	2	3	0	3
12/701302	2	3	3	0	0	3	3	3	3	2	3	3	0	2	3	2	2	3
12/701302	3	3	3	2	3	3	3	1										
12/701302	8	25	16	25	29	29	18	150										
12/701402	3	3	3	3	3	0	2	3	3	3	3	3	3	3	3	3	0	3
12/701402	2	3	3	2	2	2	2	2	3	2	3	3	2	0	3	3	2	3
12/701402	3	3	3	0	0	3	3	3	3	3	2	3	0	0	3	2	2	2
12/701402	3	3	3	2	3	3	2	1										
12/701402	17	30	19	22	30	26	17	161										

Table B.3.5. Continued.

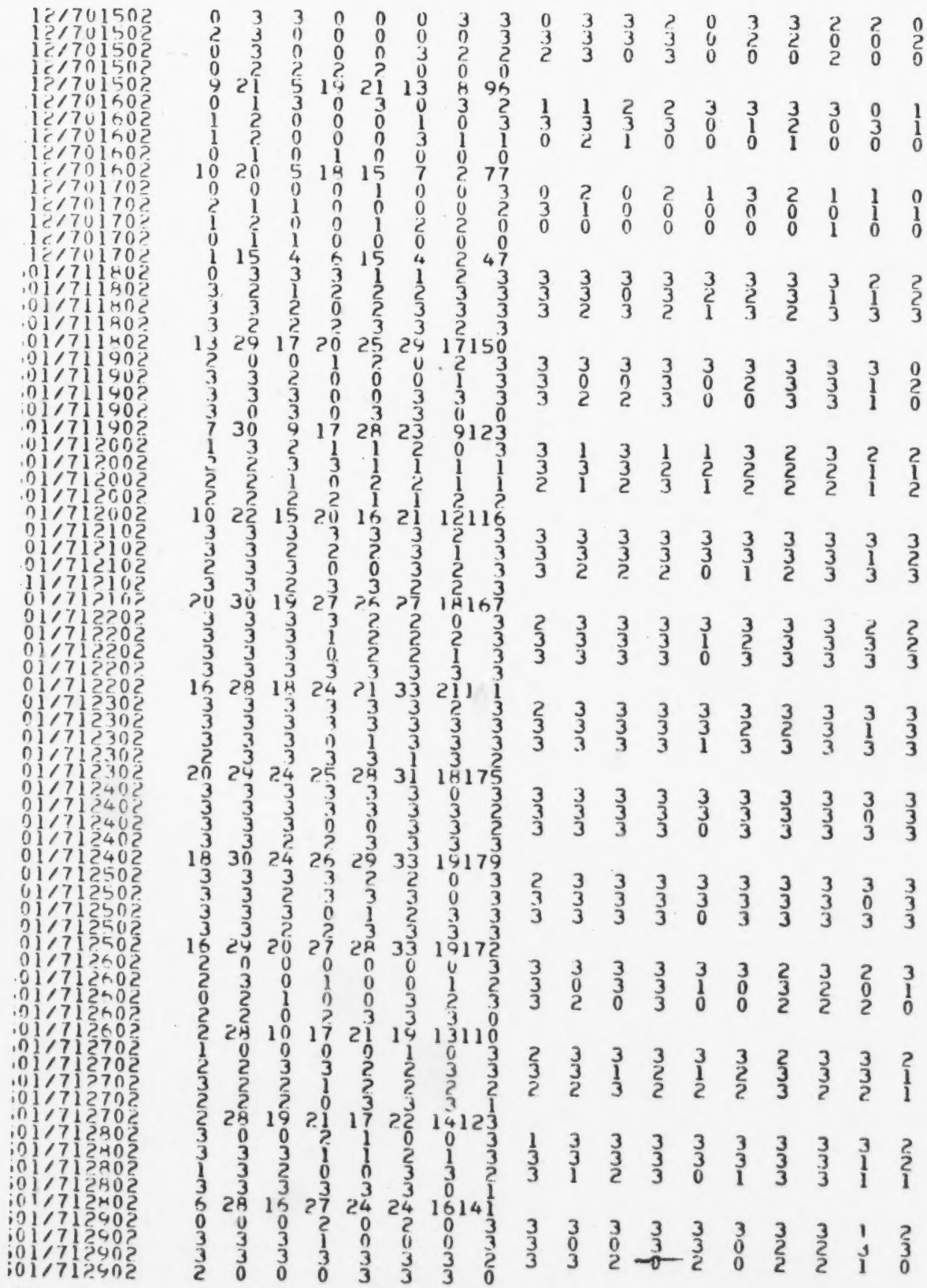

Table B.3.5. Continued.

02/714402	2	2	2	2	2	1	2	2										
02/714402	19	27	18	25	20	20	13	142										
02/714502	2	3	3	1	2	3	2	3	2	2	3	3	1	2	3	3	0	2
02/714502	3	3	3	1	3	1	2	3	3	3	3	3	1	1	1	0	1	1
02/714502	0	3	2	0	0	3	2	2	2	2	2	2	0	1	1	2	0	1
02/714502	2	3	1	1	2	3	2	0										
02/714502	16	22	18	18	21	18	12	125										
02/714602	1	0	0	0	1	0	1	3	2	2	3	3	3	3	3	3	1	1
02/714602	2	1	1	0	0	1	0	3	3	3	0	2	3	2	2	2	3	2
02/714602	1	2	1	3	3	2	3	2	2	1	2	2	0	2	2	2	1	0
02/714602	0	3	3	2	3	3	3	0										
02/714602	3	26	6	20	13	17	17	102										
02/714702	3	3	3	3	2	2	1	3	3	3	3	3	3	3	3	3	3	2
02/714702	3	3	3	2	2	3	2	2	3	0	3	0	2	0	3	3	0	3
02/714702	3	3	3	0	1	3	3	3	3	1	3	3	0	3	3	3	2	2
02/714702	3	3	3	3	3	3	3	0										
02/714702	17	30	20	16	29	29	18	159										
02/714802	1	1	2	0	1	0	1	3	2	2	3	3	2	3	2	3	1	3
02/714802	2	3	1	1	1	2	0	2	3	0	1	0	0	0	2	2	2	2
02/714802	1	2	2	0	0	3	1	3	1	1	1	2	0	0	1	1	1	0
02/714802	1	2	1	1	2	2	0	0										
02/714802	6	24	13	10	21	12	8	94										
02/714902	1	1	2	0	0	1	1	3	2	2	3	2	3	3	2	3	2	2
02/714902	2	2	2	1	1	1	1	2	3	1	1	1	0	0	2	0	2	2
02/714902	2	2	1	0	1	2	3	0	2	1	0	2	0	0	2	1	0	0
02/714902	0	2	2	2	3	3	0	0										
02/714902	6	25	12	10	18	11	12	94										